The Creation Hypothesis of Nature
Without Big – Bang .

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Abstract : Since Philosophy (logic of nature) was the first instrument of understanding world ,which was evoluted to geometry math and physics , I considered that this article [42] probably is an innovation to modern Physics and to Philosophy and to all theories about space and time. Receiving the above article ***I decided to adapt Mechanics in this.*** Euclid's elements consist of assuming a small set of intuitively appealing axioms and from them, proving many other propositions (theorems). Although many of Euclid's results have been stated by earlier Greek mathematicians, Euclid was the first to show how these propositions could be fit together into a comprehensive deductive and logical system self consistent. Because nobody until [9] succeeded to prove the parallel postulate by means of pure geometric logic and under the restrictions imposed to seek the solution ,many self consistent non-Euclidean geometries have been discovered , based on Definitions , Axioms or Postulates, in order that non of them contradicts any of the other postulates of what actually are or mean .It was proved [9, 32 ,38] that parallel postulate is only in Plane (three points only) and is based on the four Postulates for Constructions, where all properties of Euclidean geometry compactly exist as Extrema on points, lines, planes, circles and spheres. Projective, Hyperbolic and Elliptic geometry is proved to be an Extrema (deviations) [16] in Euclidean geometry where on them Einstein's theory [*A theory which has not elucidated the base of its Physical-content and adopted the wrong base of others Non-Euclid geometries*] of general relativity is implicated and calls a circle segment as line and the spherical disk as plane in physical space. It was shown [40] that the only Space-Energy geometry is Euclidean , on primary and on any other vector unit AB , (AB = The Electromagnetic field of the Quantized Energy on AB space vector) on the contrary to the general relativity of Space-time which is based on the rays of the non-Euclidean geometries to the limited velocity of light c = 3.10^8 m/s and Planck`s cavity ds = $1,616199.10^{-35}$ m. Euclidean geometry elucidated the definitions of geometry-content ,(*what is a Point, a Straight Line, a Surface, the Volume, The Space [S] ,The Anti-space [AS] , The Sub-space [SS], a Cave , The Space -- Anti-Space Mechanism of the Six-Triple-Points-Line [STPL] that produces and transfers* all Points of Spaces, Anti-Spaces and Sub-Spaces in a ***Common Inertial Sub-Space*** and a line or cylinder ,*The Gravity field [MFMF], The Particles etc.)* and describes the Space-Energy beyond Plank´s length level [*Gravity Length* $3,969.10^{-62}$ m and also in its deviations reaching the Point = L_v= $e^{i.(\frac{N\pi}{2})b=10^{-N=-\infty}}$ m = 0 m ,which is nothing and zero space. Quantization of Energy is done in Space-tanks on material points in tiny volumes and on points which consist the equilibrium opposite twin of Space and Anti-space . Many of the proofed items in this article are coming from [41] or prior articles. An extend analysis with equation of mechanics and physical laws follows in [43].

The Article : SOME PHYSICS...

Aethergy is a motionless substance, a mixture of aether and kinetic energy, distributed uniformly all over the universe and having the property of forcing any mass in it to move like in a spontaneous reaction, separating aether, **a**, from kinetic energy**8k**. Neither **a** nor **k**, are manifested as such until their mix, **a-k**, comes into contact with mass while the separation of **a** from **k** is causes aethero-vortices. Does surrounding aethergy, **a-k**, comes in to fill in the gap, implying that it moves too, even for a fraction of an instant? The answer is negative. What happens during that fraction is that the released aether transforms the **non-k** energy produced by the mass into **k**, absorbing it and restoring aethergy's spatial continuity. But, what kind of energy is the **non-k** energy? To answer this question a working definition of the terms "mass", "matter" and "**non-k**" energy is needed. A mass is a physical body, and a physical body is made up of two distinct substances, matter and **non-k** energy, **m** and **e**, incapable of forming a body, **m-e**, by themselves separately, and manifest able as such only upon contact with **a-k**.   To justify this definition and answer the question posed, the question: "Why should **a** and **m** be mixed with energy in the first place", should be answered. We must imagine them as two kinds of substances, which are unable to interact with each other by construction. A third kind of substance is required to accomplish this task: A substance, which is common to both of them and hence, mixed with them; and a substance, which at the same time is distinct and hence, of a different form. If the third substance in each mix were the same, the mixed entities would be as unable to interact as **a** and **m** are by themselves. The same if the third substance were not the same. The "bridge" is "common and yet distinct", and that's exactly what energy serves by being common to both **a-k** and **m-e**, and yet distinct with **k** exclusively mixed with **a**, and **e** exclusively mixed with **m**.   Now, there is a kind of mass, self-existent but also in all physical bodies, such that the **e** in its mass bond **m-e** may completely change to **m-k** right upon contact with **a-k**, regardless of the self-existing or co-existing in a greater body character. It happens so because it is the kind of mass with the least efficiency loss in transmuting **k** to **non-k** energy, and runs exactly with the speed of light, **c**; it is a kind of "swift" so to speak, particle. Letting **E**=k+e and **M** be denoting total energy and mass, respectively, **E**=**M**c^2 and **k***=1/2**M**c^2 is the case with the swift particle, implying that the remaining 1/2**M**c^2 is potential energy, force field. It is induced by the replacement of **e** by **k**. What kind of a force field? The instantaneous change of the **e** of the swift particle to **k** must be owing to its chemical structure and hence, we have a Charles Augustin de Coulomb (1736-1806) force field. Aether "specializes" in the transformation of this kind of potential energy back to **k** in the sense of doing it with zero efficiency loss. Consequently, aether transforms into **k** exactly the amount of **k**, 1/2**M**c^2, aethergy lost to the swift particle; and by absorbing it, aethergy's spatial continuity is restored. We have in operation the minimum energy principle in mutual connection with the least-efficiency-loss mass. And, all this takes place "automatically" at a fraction of an instant.

Does the swift particle exist by itself as we asserted a few lines earlier? Perhaps, yes, perhaps, no. The essence is that it co-exists with any greater body, and it will do run with **k*** upon the contact of the body with aethergy. But, not all of the body consists of swift particles and the remaining part of it will move with **k**<**k*** under a force field which may not necessarily be a Coulomb one. And, the total aether released may not be able to transform all potential energy back to **k**, because aether's specialization in Coulomb fields is equivalent to positive efficiency loss when the transformation of other kinds of potential energy is at stake. There will do be such losses in connection with the intermolecular force surrounding thermal energy prompting the workings of the second law of thermodynamics: Minimum energy principle in operation with regard to the swift particle, but maximum entropy principle with respect to any other type of mass, totaling to the second law of thermodynamics, but in a way disturbing the uniformity, the density of aethergy, and disrupting the equilibrium of the system, unless there is a built-in stabilization mechanism. If the system was the outcome of some big bang, this mechanism should be one providing smaller big bangs constantly. The big bang incited the greatest etherovortex of all times; this is actually what it was. But, smaller ones, small big bangs may be incited any time by the accumulation of small vortices. More precisely, vortices disarrange the spatial distribution of aethergy. The accumulation of disarrangement may lead by itself to a powerful vortex, which only secondarily could be attributed to motion of mass, because it is the indirect cumulative effect of the relatively weaker vortices from such motion. The scale of the secondary effect may be so large as to reverse the causality running from motion to vortex. Such powerful vortices are the sources of new ethergy production and the cause of a movement of masses toward them, swallowing them, and creating small Creations upon contact with the new ethergy. If equilibrium is the case, the time-scale of these workings is infinitesimal, because they are such as to be preserving aethergy "density" unchanged. . Etherovortices revive masses too, but how do they do it exactly? Let us go back to the **m-k** structure in connection with the swift particle. **k** comes not to destroy the bond **m-e** of this particle, but only to take the place of **e**. This exactly is what revives, namely the replacement of any in general **non-k** energy by **k**. And, this exactly character of the bond of the swift particle is what makes this particle be the one with the least efficiency loss and with unaffected by motion age. For the other forms of **M**, age change depends on the extent of bond change brought about by the above considerations, which change **m-e** to **m-e-k**. The faster a mass is capable of moving, the greater it means its ability to "absorb" **k**, and the less the change in its bond, or according to the terminology used until this subsection, the less the change in its hypostasis. Responsible for hypostasis change from the viewpoint of its manifestation as constant discontinuity is the automatism of aethergy's workings that is needed to maintain its own continuity.   In other words, as far as overall system equilibrium is concerned, the continuous transformation of the structure of **m-e** is needed to maintain **a-k** unaltered under of course the regulation of the system by the small big-bang mechanism. Put differently, a continuum of irreversible, irreproducible, unique **m-e**'s is needed to sustain an **a-k** eternally. Or, of course, *vice versa*; *mutuis vis viva*. The totals of all substances would remain fixed at the pre-interaction and hence, equilibrium levels, which in turn equilibrium wants energy to be at its minimum but entropy to be maximum given the constancy of total energy. And, since there can be no other quantities of the substances than the pre-interaction ones, these quantities would be the maximum ones too, rendering the quantifications "max-min" superfluous in the description of equilibrium: A system is in equilibrium when both energy and entropy are at equilibrium. Fixing also energy and entropy at their equilibrium levels renders superfluous the distinction between closed and isolated systems.

To conclude, a greater speed than that of light is the one that would move the traveling substance from the one end of the universe to the other at once. But, then the substance would not be traveling, and the speed would be no speed but kinetic energy. The substance would be distributed uniformly everywhere in the universe, waiting to unleash the tremendous kinetic energy responsible for such a state of the cosmos. This is why there has to be aethergy; because there has to be speed greater than that of light for some kind of substance; speed, in terms of mass, but kinetic energy, in terms of this substance. A substance, which is not mass, because the most mass can do from the viewpoint of **k**, is to become a swift particle. A substance for which the speed of mass is not the conjunction of two separate entities, speed and mass, but kinetic energy intrinsic to the substance, as intrinsic as **non-k** energy is to mass. In the ninth, 1878, edition of *Encyclopedia Britannica*, James Clerk Maxwell (1831-1879) was writing about the energy of light in the lemma for "Ether" (pp. 568-572) that: "If we adopt either Fresnel's or Maccullagh's form of the undulatory theory, half of this energy is in the form of potential energy, due to the distortion of elementary portions of the medium, and half in the form of kinetic energy, due to the motion of the medium." By the term "medium", Maxwell means the aether, having earlier in this lemma dismissed the material hypostasis of it. But, as we saw, half may be potential and half may be kinetic energy if a substance does have material hypostasis: $E=2k$. Of course, professor Maxwell was unaware of this relationship, but he does seem to be expecting developments on the concept like those presented earlier here...

...TOWARDS A CREATION HYPOTHESIS

From Chaos came forth Erebus and black Night; but of Night were born Aether and Day, whom she conceived and bare from union in love with Erebus… Hesiod, Theogony, (c. 700 B.C.)

Hesiod's Theogony does connote to our physics: In the beginning, there was Chaos, a world in which events were inconsequential and nothing sensible could be made out of it. For example, static electricity would appear temporally before rubbing amber with fur, or spatially somewhere else; and in the place of static electricity nothing or a nuclear blast from some other faraway interaction might be experienced. It was a chaotic world, because there was no time to preserve the sequencing of events, thus depriving the nexus cause-effect of its spatiotemporal dimension. All was random, all was incidental. There was no time or for that matter, anything else that would ensure what comes first and what comes second. Matter phenomena were independent from energy phenomena. In such a world, mathematics did exist, but the lawlessness of physics and chemistry was delivering chaos.

But, next, Day, i.e. light out presumably of a thermal source, and Aether, were born from the love, i.e. spontaneous reaction, Big Bang, between Erebus, i.e. matter, and Nyx, the perfectly black night, i.e. a substance having withheld all energy and hence, having the blackness of a black, which cannot be found anymore in nature. That is, Chaos was followed by a separation of matter from energy through the creation of such a substance, aiming at maximizing thermal disequilibrium and giving rise to a Big Bang. That substance is the aethergy, whose spontaneous reaction with matter made matter move, separate aether from kinetic energy, and develop out of this energy light-producing non-kinetic energy... According to Orpheus, Night, rather than Chaos, is the first principle… Aether is the substance ordering universe as described by our physics, which now may be completed as follows. The process under the small Creations, mentioned in the end of the last Section, regenerates the perfect black or at least darker blackness than the rest in nature and hence, this type of vortices may be called black warps, reflecting at the same time this term the abrupt disruption in the spatial distribution of ethergy. Black warps are the primary source of new ethergy and matter, keeping the overall system in equilibrium. Without them, which separate Nyx from Erebus again and again, all cosmos would be tending to become ethergy, Night... *Wherefore also these Kinds [elements] occupied different places even before the universe was organized and generated out of them. Before that time, in truth, all these were in a state devoid of reason or measure, but when the work of setting in order this Universe was being undertaken, fire and water and earth and air, although possessing some traces of their known nature, were yet disposed as everything is likely to be in the absence of God; and inasmuch as this was then their natural condition, God began by first marking them out into shapes by means of forms and numbers.* Plato (Timaeus, 17) Indeed, myths appear to be are truth in the form of allegories and fairy tales. They seem to save phenomena when the knowledge about them vanishes from memories when socioeconomic and political circumstances dictate so, when adjustment to such priorities changes individual and collective priorities for a long time. Myths save phenomena sociologically but wisdom problems like the triad Quadrature-Doubling the Cube-Trisection, predispose towards the rediscovery of this knowledge.

The three Milesian philosophers, Thales, Anaximander (c.610-c.546 B.C.), and Anaximenes (585-528 B.C.), suggest that the pre-Creation world was boundless. If this were so, indeed, then according to this manuscript, here, one more perhaps characteristic of the Creation was to endow space with finiteness. There is a transition in ancient Greek thinking from *Chaos* to *Apeiron*; both are connected with the infinite, and it seems that Apeiron is the ordered one whereas Chaos connotes disordered infinite. The Creation according to Milesians, put some good order to the infinite, and I maintain that one more characteristic of this order was the finiteness of the infinite of space. One striking resemblance of my theory here with the position of the Milesians about the origin and character of the cosmos, is that "genesis and decay", small creations, small big bangs, according to this monograph, will never stop. Aristotle explains that it is in this temporal nexus that the notion of apeiron was held by the Milesians. Nothing is going to happen to the cosmos for as long as its "batteries" of small creations work, indeed. Moreover, these considerations appear to make justice to Pythagorean and Platonic position that: *Nothing can exist if it doesn't contain continually and simultaneously the limited and the unlimited, the definite and the indefinite* (Plato, Philebus, 16). Unfortunately for the Pythagoreans, it was too early to find out that this is the context within which empirical content is conferred to the incommensurability of numbers, which they had discovered. For us here, in empty space, numbers do constitute Platonic forms. But, in the space filled with **a-k** and **m-e**, uniqueness, irreproducibility, irreversibility of events implies that only number one exists in Cosmos. It is a different matter if man needs the Arithmetic, Mathematics, and Geometry to study the Cosmos. The truth is that it is a numberless and timeless Cosmos. And, the only Platonic form left to speculate upon outside Plato's Cave in an Aristotelian fashion, is the "*Arche*", (Αρχή) .

The Hesiod Creation Hypothesis without Big-Bang

CHAOS = Primary Point [A] = The non-existence − Time t = 0

EREBUS = Space [S], Anti−space [AS], Sub−space [SS] Time t = 0 The creation of Opposites .

BLACK−NIGHT = The Geometrical caves for breaking of Opposites t = 0

BORN = The Six −Triple −Points −Line [STPL] Mechanism of Opposites to co−exist velocities Simultaneously −Time t = 0

AETHER = The Rest dipole Gravity − Field and Gravity−Force [E,H] in ds Rest field ,Time t = T = Eternal

DAY = Moving or rest Particles,Antiparticles Dark matter,Dark Energy−Time t = t Next DAY = Atoms , Molecules and Bodies ,as the Chemical laws

THE CRITIQUE

Following Euclidean geometry , short definitions and elucidations are preceded.

What is a Point and what is a segment **?** Point is nothing and has not any Position and may be anywhere in Space, therefore , the Primary point ,A, being nothing also in no Space, is the only Point and nowhere, i.e. Primary Point is the only *Space* and from this all the others which have Position , therefore it is the only Space and so to exist point ,A, at a second point ,B, somewhere else point ,A, must move towards point ,B, where then A ≡ B. Point B is the Primary *Anti-Space* which Equilibrium point ,A , Primary Neutral Space → PNS = [A ≡ B] .The position of points in [PNS] creates the infinite dipole and all quantum quantities which acquire Potential difference and an Intrinsic momentum ± Λ in the three Spatial dimensions (x , y , z) [26] and on the infinite points of the (n) Layers at these points , which exist from the other Layers of Primary Space , Anti-Space and Sub-Space , and this is because Spaces = monads = quaternion. (*Any magnitude having Position ,x,y,z related to a coordinate system and Direction , →,←, is characterized as Vector and extensively as quaternion*) . [9] .

Since Primary point ,A, is the only Space then on this exists the Principle of Virtual Displacements W = $\int_A^B$ P. ds = 0 or [ds.(P$_A$ + P $_B$) = 0], i.e. for any ds > 0 Impulse P = (P$_A$ + P $_B$) = 0 and [ds. (P$_A$ + PB) = 0] , Therefore, Each Unit AB=ds > 0, exists by this Inner Impulse (P) where P$_A$ + P $_B$ = 0. → i.e. The Position and Dimension of all Points which are connected across the Universe and that of Spaces exists , because of this equilibrium Static Inner Impulse , on the contrary should be one point only (Primary Point A = Black Hole→ ds=0 and P = ∞).[17,22] ↔[{A(P$_A$) ←0→ (PB)B}] is the symbolism of the two opposite forces (P$_A$) , (PB) which are created at points A,B . This Symbolism of primary point (*zero 0 is nothing*) shows the creation of Opposites ,A and ,B, points from this zero point which is Non-existence. [12]

All points may exist with force P = 0 → (PNS the Primary Neutral Space) and also with P ≠ 0 , (P A + P B = 0) , (PS is the Primary Space) for all points in Spaces and Anti − Spaces, therefore [PNS] is self-created , and because at each point may exist also with P ≠ 0, then [PNS] is a (perfectly Homogenous , Isotropic and Elastic Medium) Field with infinite points (i) which have a ± Charge with force P$_i$ = 0 → P = Λ→ ∞ and containing everything .

Since points A,B of [PNS] coincide with the infinite Points , of the infinite Spaces , Anti-Spaces and Sub-Spaces of [PNS] and exists rotational energy ± Λ and since Motion may occur at all Bounded Sub–Spaces (± Λ , λ), then this Relative motion is happening between all points belonging to [PNS] and to those points belonging to the other Sub-Spaces(A≡B). The Infinite points in [PNS] form infinite Units (monads = segment) A$_i$B$_i$ = ds , which equilibrium by the Primary Anti-Space by an Inner Impulse (P) at edges A,B where P $_i$ A + P $_i$ B ≠ 0 , and ds= 0 →N→ ∞ , are the particles.

Monad (Unit ds = Quaternion) ĀB is the ENTITY and [AB –P $_A$, P $_B$] is the LAW, so Entities are embodied with the Laws . Entity is quaternion ĀB, and law |AB| = length of points |A,B| or wavelength when AB=0 and imaginary part the forces P$_A$, P $_B$, as fields in monads (*Since Action at a distance is the continuity from all intermediate points which are also nothing , and quantized energy in a tiny volume consists the material point which is thus succeeded by , a field , or by Exchange of energy in the Inner-monads field*) . [39- 40] .

The Conservations Navier - Stokes laws [mass, momentum, energy] *and the tiny Volume in Nature* :

1-- Mass : Using Gauss` and Ampere`s law for continuity equation [Conservation of mass] then in a tiny volume **dV** exists , ∂ρ/∂t+∇ j = σ , or equally ∂ρ(*mass*) / ∂t + ∇ j = 0 → ∂ρ / ∂t + ∇.(ρ.v̄) = 0 where ,
∇ = Divergence , **ρ** = the amount of the quantity ,**q**, per unit volume , **j** = ρ.v̄ , the flux of ,q, **t** = time , **σ** = the generation of ,q, (*mas*s) per unit volume per unit time , and since for → σ > 0 generate ,q, (*sources*) , → σ < 0 remove ,q, (*sinks*) , → for σ = 0 and conserve ,q, (*not created – not destroyed*), v̄ = the velocity vector. In Stokes-Green theorem angular velocity ,w, of inner tiny volume ,dV, says that the integral of a differential form ,**w**, over the boundary of orientable manifold ,**dV**, is equal to the integral of its exterior derivative ,**dw**, over the whole volume **dV,** i.e. $\int_{\partial V}^{V}$ w = $\int_V$ dw and

Kelvin-Stokes theorem is for surface integral of the curl ,$\nabla\mathbf{x}$, of a vector field ,F, over a surface ,S, in Euclidean three-space to the line integral of the vector field over its boundary ,∂S, as $\iint_S \nabla x F . dS = \oint_{\partial S} F . dr$.

Since energy of waves is conserved then whenever the energy decreases from a small volume dV , it is accompanied by the flow of the same energy through the boundary of the small volume and the current ,$\bar{\jmath}$, ensures conservation of energy until elsewhere. *Electromagnetic waves are able to transmit energy through a vacuum (empty space) by storing their energy in their Standing Transverse Electromagnetic dipole wave as above, and thus considered completely particle like , and in transverse interference pattern to be considered as completely wave* , so when ,

Energy $I_d = \frac{\rho\pi^2 c^3}{2\lambda^2}[\varepsilon E^2 + \mu H^2]$ ***in volume*** $V = [\frac{4(w^2 r^2)^3}{3\pi}]$ then energy is like $\rightarrow$***Particle Energy*** and when ,

Energy $I_d = (\frac{\rho.c}{2}).(wA_o)^2$ ***in Interference pattern*** then energy is like $\rightarrow$ ***Wave***

This tiny energy volume for wave`s case , is the Cycloidal volume $dV = 4/3.\pi.ab^2 = \frac{4\lambda^3}{3\pi}$, [because $a = \lambda$, $b = \lambda/\pi$] ***of the Electromagnetic stationary field*** $[\bar{E}x\bar{H}]$ ***where Intensity*** $Sc = [\frac{\varepsilon.E^2}{2} + \frac{\mu.H^2}{2}]$ and ε,μ the Permittivity ,*(the Dielectric constant multiplier*) , Permeability (*the Dielectric constant multiplier*). [41]

Conclusion : All particles are characterized by their quantized cave the Space [$V = \frac{4\lambda^3}{3\pi} = \frac{4(w^2 r^2)^3}{3\pi}$] composed of an inner Electromagnetic wave constituent [E$\perp$H], h=$2\pi/\lambda$, the reaction to these velocity motions [the mass $\mathbf{m} = (pr).w/c^2 = \frac{h.w}{2\pi.c^2}$], the external energy momentum $\mathbf{p} = \frac{h}{2\pi\lambda}$ and Spin (the helically rotating electric field vector corresponding to a circularly polarized Electromagnetic wave propagating with attenuation to the right. Inner ,r,w magnitudes of ,V, are achieved from the inner ,r,w, cave of breaking the opposites) . Conservation laws of energy linear and angular momentum are satisfied by their inner Anti-cycloidal motion , (on the evolute curve) .

2--Momentum : In general momentum p = m$\bar{v}$, therefore the amount of momentum per unit volume ,dV, is ,$\rho\bar{v}$, and for surface normal stress σ = F/dS = - F and then becomes $\rightarrow$ $\partial\rho\bar{v} / \partial t + \nabla.(\rho.d\bar{v}).V = \nabla.\sigma + \rho.g$, i.e. momentum is converted into a normal stress ,σ, in tiny volume plus momentum of the whole volume as mass ,*body force*, where ∇ is nabla symbol for , *divergency* ,g, is gravity`s net acceleration ,$\rho$, the inner volume density. This interpretation applied to Young`s interference and Polarizer experiments for dark fringes then $\rho=[\varepsilon E^2 + \mu H^2]$ and is shown the unified understanding between the classical Electromagnetic field and the quantum particle of light.

3--Energy : By definition energy is defined as the ability to do some work ,W. According to D`Alembert`s principle of virtual work ,δri, due to applied forces ,Fi, and Inertial forces ,miai, acting on a three-dimensional acceleration ,ai, system of ,n, particles whose motion is consisted with the constrains then $\delta W = \sum_{i=1}^{n}(Fi - miai).\delta ri = 0$, where i=1,2..n simply labels the particles and in terms of generalized coordinates then $\delta W = \sum_{j=1}^{m} \sum_{i=1}^{n}(Fi - miai).\left(\frac{\partial ri}{\partial qj}\right)\delta qj = 0$ suggesting that the applied forces may be expressed as generalized forces ,Qi= δW/δqj $= \sum_{i=1}^{n}. Fi.\left(\frac{\partial ri}{\partial qj}\right)$ and if the forces are conservative where Force F is the gradient of the scalar potential ,V, then Fi = - ∇V$\rightarrow$ Qj = - $\sum_{i=1}^{n}.\nabla V.\left(\frac{\partial ri}{\partial qj}\right) = \partial V/\partial qi$ i.e. generalized forces can be reduced to a potential gradient in terms of generalized coordinates . ***Lagrange`s*** generalized equations of motion are Qj $= \frac{d}{dt}(\frac{dT}{\dot{q}j}) - \frac{dT}{\partial qj}$, where T $= \frac{1}{2}\sum_{i=1}^{n}. mi\dot{r}i . \dot{r}i$, the Kinetic energy and $\frac{\partial T}{qj} = \sum_{i=1}^{n}. mi\dot{r}i . \left(\frac{\partial \dot{r}i}{\partial qj}\right)$, the partial derivative of total kinetic energy T with respect to the generalized coordinates qi, and generalized velocities $\ddot{q}j$. The Lagrangian L = T-V where T = the kinetic energy and V = the Potential energy of the system.

Euler-Lagrange second kind equations issue for any system with ,j=1,2,..m, degrees of freedom includes ,m, generalized coordinates ,qi, and velocities ,$\ddot{q}j$, and it is $\frac{d}{dt}(\frac{\partial L}{\dot{q}j}) = \frac{\partial L}{\partial qj}$, an easy generalized coordinate method choosing minimum qi, and constrained forces are incorporated into the geometry of the problem . Both above generalized equations are derived from Newton`s 2nd Law since Fi = - ∇V is a force independent of third-or higher-order derivatives of ,r, and δW = F.δr = m $\ddot{r}$.δr = m.$\sum_{j.}$ { $\sum_{i}\left[\left(\frac{d}{dt}\right).\left(\frac{\partial}{\dot{q}j}\right).\left(\frac{\dot{r}i^2}{2}\right) - \left(\frac{\partial}{\partial qj}\right).\left(\frac{\dot{r}i^2}{2}\right)\right]$}.$\delta$qj , a difficult utilisation relation .

Remark : *Virtual Work Principle is embedded in all Energy – equations , dependent or not in time ,t, by using the two only basic elements of universe , that of Space , dri = dsi , and that of Energy = work W = T +V , Kinetic ,T, and Potential ,V, energy . Because Work is conserved by following Quantization process either as Energy and Space or both and because is equal to W = p.dr = (mv).dr = m.(v.dr) , (Not Evolution), so all its derivatives are conserved .*
A whole analysis follows for energy conservation , by quantization in wavelength tiny energy volume for wave`s case.

Radiation of Energy is enclosed in a cavity of the tiny energy volume $\lambda = [\frac{4(w^2 r^2)^3}{3\pi}]$,*(cycloidal) with perfect and reflecting boundaries and this cavity may become infinite in every direction and thus getting in maxima cases (the limits) the properties of radiation in free space. The electromagnetic vibrations in this volume is analogous to vibrations of an Elastic body (the stresses) in this volume and thus Fringes are a superposition of standing vibrations .*

What is Kinetic Energy and what is mass ? It was shown [16] that Projective and Perspective geometry are Extrema in Euclidean geometry and [STPL] line their boundaries , becoming from common Space and Anti-space. Energy , *Motion ,* follows this Euclidean moulds , because this Proposition , *Principle ,* belongs to geometry , *and not to Energy which is only motion* . In [33-35] Un-clashed Fragments through center O , consist the Medium-Field Material-Fragment $\rightarrow$[± s²]

= [MFMF] as base for all motions , and Gravity as force [∇i] , while the clashed with the constant velocity ,$\overline{c}$, consist the Dark matter [$\pm \overline{c}.s$] and the Dark energy [$\overline{c}.\nabla$i] ,or from → Breakages [$\pm s^2 = \pm (wr)^2$] and [$\nabla i = 2(wr)^2$] then become

  A..[$\pm \overline{v}.s^2$] → Fermions and [$\overline{v}.\nabla$ i] → Bosons

  B..[$\pm s^2$] → [MFMF] Field   and into this , Field [∇i] → Gravity force

  C..[$\pm\overline{c}.s^2$] → Dark matter[$\overline{c}.\nabla$i] → Dark energy. [39,40].

 Thrust ($\overline{v} = \overline{w}.r$) is continually acting on the Breakages [s^2,-$|\overline{v}|^2$, [$2\overline{w}$].|s| |r| = $2(\overline{w}..r)^2$] produces the [1-1 +2].$\overline{w}^3$.$|\overline{r}|^3$ magnitudes (w.r)³ , which is a Positive Scalar magnitude, with Positive or zero electric charge and with , ½ or 1, spin. [30] → and the double angular velocity term which is a Vector magnitude [$2\overline{w}$].|s|.$|\overline{r}|$.∇. and then when ,

1.Positive breakage Quantity $|\overline{v}|^2 = |\overline{w}x\overline{r}|^2 = |\overline{w}.r|^2$ → Being at Space points A,B,C then Action magnitudes Q at coinciding points DA,DB,DC - PA,PB,PC Produces Leptons and Quarks, and carry them on [STPL] line , cylinder .

2.Negative breakage Quantity - $|\overline{v}|^2 = -|\overline{w}x\overline{r}|^2 = -|\overline{w}.r|^2$→Being at Space points A,B,C then Action magnitudes Q at coinciding points DA,DB,DC - PA,PB,PC Produces Anti-Leptons and Anti-Quarks, and carry them on [STPL] line.

3. Positive breakage Quantity [$2\overline{w}$]].|s|.$|\overline{r}|$.∇i = 2w.(sr).∇i = 2w.(r^2.w).∇i = 2w.r^2w.∇i→ Bosons , being at Space points A,B,C then Action magnitudes Q at coinciding points DA,DB,DC-PA,PB,PC Produces Bosons and carry them on [STPL] .

4. Breakage Quantities [$\pm s^2 = \pm (wr)^2$] , being at ,O, commons` circle center and thrown OFF and into [STPL] , and this because of v = 0 , formulate the [MFMF] homogeneous , rest Field , which consist the base of all motions .

5. Breakage Quantities ∇i= $2(wr)^2$] being at ,O, commons` circle center and thrown OFF into [STPL] , and this because of v=0 ,and acting on dipole breakages of [MFMF] Field [$\pm s^2 = \pm (wr)^2$] →[|+$(\overline{w}.r)^2$|↔|-$(\overline{w}.r)^2$|=|λ|],{ *where when the like charges repel and the unlike charges attract* , experience a force as Lorentz force which is called Gravity-Force and thus formulated the Gravity force .

6..Breakage Quantities [$\pm \overline{c}.s^2$] and [$\overline{c}.\nabla$i] , the clashed with the constant velocity,$\overline{c}$,formulate in [STPL] cylinder Dark matter and Dark Energy respectively . [33 - 35]

***Work ,W,** is conserved as* , Universal Principle of Virtual work on Geometry Primary dipole ,ds, *law* W= $\oint$ F. ds , *and as Energy is then Quantized* , converted *,in Space monads , caves ,cells,* $\overline{x}$ = d$\overline{s}$ = λm , *as pressure* σ ,τ , *the pressure is converted in caves as a Standing Electromagnetic Wave* E,P *which consists the Standing monad* (*Displacement current*) *and the moving Energy monad (by altering the inner wavelength or Period of monad) in Gravity`s field medium* [MFMF] *and is dissipated as Quaternion monads (Particles or Waves , matter or vectors) as Forces (displacements , masses , pressure etc.) using modulus , coefficients , reactions to the motion and all other geometrical indices .*

Stability In-Out wavelength is obtained by the Isochronous Anti-Standing Electromagnetic Wave E,P *which happens on Anti-cycloid ,* Evolute *, and whirling ,* Curl *, by the equality of the two transverse Complex Envelope displacements, Amplitudes , that consist the Standing monad* (*Coriolis force curl helix Displacement current in monads*) *.* [39-40]

 The Work Quantization process to → *Energy and Space or both* (Not Evolution) ← is as follows , [12,41] ,

Work W = P.ds   −[ds=0 , t =0 , F≠0] → Stationary Force on zero Displacement and is transformed as ,

Work W = (σ.dF).ds − [ds=0 , t=0 ,dF≠0] → Stresses on any Area , and if area is zero then is transformed as ,

Work W = (c[εμ])ds − [dF=0, ds=0 , t=0] → Permittivity-Permeability of Electromagnetic field and is transformed as ,

Work W = (E⊥H).ds − [dF=0 ,ds=0, t=0] → Inner Electromagnetic Wave of monad and is transformed as ,

Work W = (λm).ds − [dF=0 ,ds≠0, t =0]→ Moving Field Vector and for dF= 0 , ds≠0 is transformed as ,

Work W = (p).ds − [dF=0, ds≠0 , t=0]→ Angular Momentum of the moving field , and is transformed as ,

Work W = (h/v).ds − [dF=0, ds≠0 , t=0]→ Cycloidal Spin , in wavelength λ , and is transformed as ,

Work W = (λm).(v.t) − [dF=0 , ds≠0, t=t]→ Kinematic Vector with mass and velocity, and is transformed as ,

Work W = (M).v.dt −[dF=0 , ds≠0 , t=t] → General mass-Velocity moving vectors , and is transformed as ,

Work W = (p).dt − [dF=0 , ds≠0 , t=t]→ Linear Momentum

What is Gravity field and Gravity force : It was referred that Fragments $s^2 = \pm |(\overline{w}.r)^2|$ occupying the minimum quantized space $|s^2|$ are deported and fill all [STPL] cylinder which is the Rest Quantized Field $\pm [(\overline{w}.r)^2]$ or it is, ***the material point in mechanics*** , as the base of all motions where force [$(\overline{w}.r)^2\nabla$i] = 2.[$(\overline{w}.r)^2$] is vibrating on length 2.$|[(\overline{w}.r)^2]|$ = λ as a Stationary Wave, and creates the curl Electromagnetic Field E ⊥ P , on which is the Universal Quantized force called Gravity. The Gravity - Force is equal to Fg = $|\overline{q}|$.[E+$\overline{v}$xP] and is exerted on any movable particle with charge $\overline{q}$ **.** Gravity - Field is Gf=[E+ $\overline{v}$xP], the unmovable, *forced welded spinning dipole,*→[|+$(\overline{w}.r)^2$|↔|-$(\overline{w}.r)^2$|=|λ|]≡[{A(PA)←0→ (PB)B}] ← and because jointed with force, means that Newton`s laws issue in both , Absolute System [S] and Relative System [R] .

Mass m – M **:** Mass m = (pr).w/v^2 = the meter of reaction to the motion and → momentum p = 2π(pr).[c/λ] the Anti-reaction ← and for v = c = velocity of light , then Planck`s equations for   mass   **m** = (pr).w/$c^2$ = h.w/$2\pi c^2$ , and for momentum  **p** = h/$2\pi\lambda$ , where w = Particle`s oscillation frequency , which is that of caves`  inner common circle and it is constant , and ,r, the rolling circle`s radius . All waves oscillate with total energy 2E = p.v = [pr].w ,which awareness translational motion (pr) at light ,c, and rotational at spin (w) motion in helical behavior .

The Work Quantization process occurs as this compound helical motion and is conserved in < *translational motion* (pr) *and rotational motion at spin* ($\overline{w}$) > wavelength of particles (*monads*) following all known physical laws .

Plane wave`s Energy is stored as Stationary wave`s Energy in case (*knot points*) of wave Interference . [41]

What is a material point , and length , in Mechanics :

Material point (1) at Euclidean point (1) , which is now Breakage $\pm [(\overline{w}.r)^2]$ becomes from that cave where Point = Lv = r = e^i.(N.π/2)b = $10^{-N=\infty}$ as equilibrium magnitude in this Rest Homogenously – Isotropically and , Quantized , mass-less Field [PNS] in cycloidal volume $\pm [(\overline{w}.r)^2]$≡[|+$(\overline{w}.r)^2$|↔|-$(\overline{w}.r)^2$|=|λ|],{and consist in our Planck`s confinement the required

coordinate System and base for all motions and forces .This rest Space system [PNS] (the Base) is the Medium-Field Material Fragment → [MFMF] Field with the less space distance ds = $|\overline{w}.\overline{r}|^2$, *and it is the Minimum Space-Quanta* .

Material wavelength λ= (1)-(2) in the {[Medium-Field Material Fragment] →[± s²] = $|\overline{w}.\overline{r}|^2$=[MFMF] Field←}, *or* →[|+$(\overline{w}.r)^2$|↔|-$(\overline{w}.r)^2$|=|λ|]≡[{(1)(J=P1)←0→ (J=P2)(2)}] ← which is a standing wave in cavity (1)-(2) with scalar breakage |±$(\overline{w}.r)^2$| as medium (1)-(2) field , and (J1) as energy at point (1) and carried to point (2) by following the cycloid motion from (1) to (2) which is isochrones. Velocity ,$\overline{v}$, during shifting is analyzed into two velocity vectors $\overline{v}1$, $\overline{v}2$, which undergo vibrations causing two waves that represent the two Electric E, and Magnetic H, perpendicular components following the trajectory , in=(c1) , out=(c2) .On cycloid = (c)=|(1)-(2)| is needed the isochrones time T=π.$\sqrt{Rc/g}$ = π$\sqrt{T}$/λ to reach End (2) < Fermat`s Principle of Least time > is the Extreme in < Isochrones Principle > which is embedded in all wavelength vector monads , *and it is the Minimum Energy-Quanta* . [39-41]

So, Gravity force is the minimum attractive and biding Force $\nabla i = 2(wr)^2$ *on* [MFMF] = $|(wr)^2|$ *Base* , which base is composed of the two ± $|(wr)^2|$ dipole and restrained by the above Electromagnetic field E,P becoming from the binding force $|2(wr)^2|$ and having the equations E = 2A .$\sin kx.\cos wt$ = $\sqrt{2}.|(wr)^2|.\sin kx.\cos wt$, P = 2A .$\sin kx.\cos wt$ = $\sqrt{2}.|(wr)^2|.\sin kx.\cos wt$, *of our Planck`s confinement cave , which interact with all other particles . Since also acceleration* a = d$\overline{v}$/ dt = (dλ/dt).f , analogues to wavelength ,λ, and frequency ,f, *then for* , λ = *any constant (or zero) and* $\overline{v} \to 0$, *then* f $\to \infty$. *This is the why the very strong gravitational fields are present and close to black holes where there* $\overline{v} = \overline{c} = 0$ *or any constant* .[40-41]

General Relativity by accepting space-time a Priori is as accepting the two elements , *Space and Time*, as the fundamental elements of universe without any proof for it , so anybody can say that *this stay on air and needs a proof* . It has been proofed [22-26] that any space AB is composed of points A,B which are nothing and equilibrium by the opposite forces P_A = - P_B following *Principle of Virtual Work* . *Time (t) is the conversion factor between the conventional units (second) and length units (meter) . By considering the moving monads (particles etc. in space) at the speed of light, then pass also through Time, this is an widely agreeable illusion* .

Caves and Magnitudes : All particles are characterized by their quantized cave the Space [V= $4λ^2/2π$= $4(w^2.r^2)^2/2π$] composed of an inner Electromagnetic wave constituent [E⊥H] , h=2π/λ, the reaction to these velocity motions [it is the mass **m** = (pr).w/c² = h.w/2πc²] , the external energy momentum p = h/2πλ and Spin (the helically rotating electric field vector corresponding to a circularly polarized Electromagnetic wave propagating with attenuation to the right) . Conservation laws of energy linear and angular momentum are satisfied by the inner Anti-cycloidal motion , (on the evolute curve) . This interpretation of caves applied to Young`s interference and Polarizer experiments is shown the unified understanding between the classical Electromagnetic field and the quantum particle of light .

This tiny energy volume for wave`s case , is the Cycloidal volume V= 4/3.π.ab² = $4λ^3/3π$, [*because* a = λ , b = λ/π] *of the Electromagnetic stationary field* [E̅x̅H̅] *where Intensity* Sc = [ε.E²/2+μ.H²/2] *and* ε,μ *the Permittivity ,(the Dielectric constant multiplier*) , *Permeability* (*the Dielectric constant multiplier*) .

Electromagnetic waves are able to transmit energy through a vacuum (empty space) by storing their energy in a Standing Transverse Electromagnetic dipole wave as above , and thus considered completely particle like, and in transverse interference pattern to be considered as completely wave , so when Energy is

Energy $I_d = \frac{\rho\pi^2 c^3}{2\lambda^2}$ [εE²+μH²] *in volume* V = $[\frac{4(w^2 r^2)^3}{3\pi}]$ → *Energy behaves as Particle* like ,

Energy $I_d = (\frac{\rho.c}{2}).(wA_o)^2$ *in any Interference Pattern* → *Energy behaves as Wave* like ,

This is the Wave-Particle duality unifying the classical Electromagnetic field and quantum particle of light.

The correlation of Philosophy (PH), ***Euclidean Geometry*** (EG), ***Physics*** (P) ***and New Hypothesis*** (NH) ***is as follows*** :

Philosophy (PH)	Euclidean Geometry (EG)	Mechanics-Physics (MP)	The Creation Hypothesis (CREANOBB)
CHAOS →	Point (0)	Schwarzschild radius r_s=2Gm/c²	*Point*→ L_m= $e^{i(\frac{N\pi}{2})}$b=$10\overline{N}=\infty$= 0
↓ ∟ EREBUS → ↓ ∟	Straight line (- ∞ , 0 ,+ ∞)	A cloud for -∞ and for + ∞ a web extended constituents	*PNS → Spaces , Anti-spaces ,* *Sub-spaces in all Sub-spaces* .
BLACK-NIGHT → ↓	Numbers ± (1 , 2 , 3 , N)	Entropy of indivisible particles or Fluctuation of particles shape	*Monads* Ai-Bi=*Quaternions=Work* *In tiny volumes* V=$\frac{4\lambda^3}{3\pi}$ = $\frac{4(w^2 r^2)^3}{3\pi}$
∟ BORN →	The different Homogeneous Coordinate Systems [A]–[R]	Big-Bang theory	*The geome-mould STPL mechanism* *on tiny caves producing Particles.*
↓ ∟ AETHER → ↓ ↓	The Non-Euclid geometries *Quantized force* ∇i=2.s² *of cave radius ,r, and ,w, vibrating on length* [|+s²|↔|-s²|] = λ *and creating* *on dipole ,λ , the Stationary Electromagnetic Wave , Field* E ⊥ P , *of* [MFMF] *Base.* (*gravity of* wr)	The fluctuations of Spacetime	*The minimum attractive and binding*
∟ DAY →	Quaternion *Particles , Dark-matter and Dark-energy ,Atoms , Molecules and Bodies following Chemical laws* *in physical laws and everything derivative in this Cosmos.*	Rest and Moving particles	*Moving or Rest Particles and Anti -*

COMMENTS IN {**Bold** and normal}

Aethergy is a motionless substance, a mixture of aether and kinetic energy,{**Considering Aethergy motionless and having also kinetic energy , Aethergy is accepted to be as a Quaternion q = a+(i)k of Real part ,a, and Imaginary ,ik,**} *distributed uniformly all over the universe*{**uniformly distribution happens because breakages [± s²] being dipoles are restrained by the inner Electromagnetic field [E⊥H] of gravity forces**} *and having the property of forcing any mass in it to move like in a spontaneous reaction, separating aether, **a**, from kinetic energy, **k**. Neither **a** nor **k**, are manifested as such until their mix, **a-k**, comes into contact with mass while the separation of **a** from **k** is causes aethero-vortices.*{**a-k is Gravity`s Quaternion ,q, as the definitions above and is not happening separation of ,a, from ,k, because ,k, is the Inner Electromagnetic field joining the opposite dipole breakages ±s²** }. *Does surrounding aethergy ,**a-k**, comes in to fill in the gap, implying that it moves too, even for a fraction of an instant? The answer is negative. What happens during that fraction is that the released aether transforms the **non-k** energy produced by the mass into **k**, absorbing it and restoring aethergy's spatial continuity.*{**a-k is Gravity`s Quaternion consisted of dipole breakages** [±s²] **side by side and are the minimum Quantized Energy , Quanta ,2s², of our Planck`s confinement and so gap is not existing because this becomes the wavelength of Gravity field , and as prior referred for , material point, it is spatially diffused in all quantized spaces**}. *But, what kind of energy is the **non-k** energy? To answer this question a working definition of the terms "mass", "matter" and "non-k" energy is needed. A mass is a physical body, and a physical body is made up of two distinct substances, matter and **non-k** energy, **m** and **e**, incapable of forming a body , **m-e**, by themselves separately,and manifest able as such only upon contact with **a-k**.*{**Mass m , is not a physical body but that consistence factor measuring the reaction of the body to its motion and it is a scalar magnitude .The external energy momentum p= h/2πλ and Spin is the helically rotating electric field vector corresponding to a circularly polarized Electromagnetic wave propagating with attenuation to the motion .The non-k energy belongs to the stability reaction of the outer Electromagnetic field of the body with the inner Electromagnetic field of gravity. Stability reaction of the inner Electromagnetic field of the wavelength is obtained by the inverse Anti - Electromagnetic field following the Conservation laws of energy linear and angular momentum satisfied by the inner Anti-cycloidal motion, (the non-k energy is the Anti-Electromagnetic field on the equilibrium evolute curve on the balancing cycloidal field wavelength) , m-e, is another one particle with charge ,q, contacting with the rest gravity field a-k . Here is referred that all constituents of , after Born mechanism** , contain all prior constituents which are the two only components and all of Erebus ,** *Equilibrium and all physical Laws of opposites - the smaller caves and constant velocity **c** greater than that of light - e.tc.* , and Black-Night properties **,** *the Quantity and Quality of particles dependent on Thrust –the Motion of particles due to Centre or Circumference of Common circle – etc.***, is the Point which is nothing and , the Work which is the Energy as above in all its transformations , i.e. the Energy-Space Universe and not the Space-time universe .**}[39]
*To justify this definition and answer the question posed, the question: "Why should **a** and **m** be mixed with energy in the first place", should be answered. We must imagine them as two kinds of substances, which are unable to interact with each other by construction. A third kind of substance is required to accomplish this task: A substance, which is common to both of them and hence, mixed with them; and a substance, which at the same time is distinct and hence, of a different form. If the third substance in each mix were the same, the mixed entities would be as unable to interact as **a** and **m** are by themselves. The same if the third substance were not the same. The "bridge" is "common and yet distinct", and that's exactly what energy serves by being common to both **a-k** and **m-e**, and yet distinct with **k** exclusively mixed with **a**, and **e** exclusively mixed with **m** .* {**a-k and m-e consist two different quaternion , the first belonging to the rest Gravity field and the second to any rest or moving particle or body , therefore the two quaternion interact with each other , either directly or indirectly, so no third kind of substance is required }.**

*Now, there is a kind of mass, self-existent but also in all physical bodies, such that the **e** in its mass bond **m-e** may completely change to **m-k** right upon contact with **a-k**, regardless of the self-existing or co-existing in a greater body character. It happens so because it is the kind of mass with the least efficiency loss in transmuting **k** to **non-k** energy, and runs exactly with the speed of light, **c**; it is a kind of "swift" so to speak, particle. Letting **E=k+e** and **M** be denoting total energy and mass, respectively, **E=Mc²** and **k*=1/2Mc²** is the case with the swift particle, implying that the remaining 1/2Mc² is potential energy, force field. It is induced by the replacement of **e** by **k**.* {**mass m is the reaction to the motion either is the intrinsic motion of monads (** *cycloidal and anti-cycloidal motion of v1,v2 for stability in monad* **) or the outer, since it is a conversion factor (***as this happens also for time***) . Energy ,k, which is the gravity`s inner Electromagnetic field is balanced by the opposite anti - Electromagnetic field which is created on the cycloidal evolute without any loss of energy. Energy is added to energy so E = k+e and since the reaction to the motion is ,** *energy and mass together***, the generalized mass M then Lagrange`s equation of energy E=Mc²/2 becomes for oscillating energy 2E , k* = 1/2Mc² }.** *What kind of a force field? The instantaneous change of the **e** of the swift particle to **k** must be owing to its chemical structure and hence, we have a Charles Augustin de Coulomb (1736-1806) force field. Aether "specializes" in the transformation of this kind of potential energy back to **k** in the sense of doing it with zero efficiency loss. Consequently, aether transforms into **k** exactly the amount of **k**, 1/2**Mc²**, aethergy lost to the swift particle; and by absorbing it, aethergy's spatial continuity is restored. We have in operation the minimum energy principle in mutual connection with the least-efficiency-loss mass. And, all this takes place "automatically" at a fraction of an instant.*
{**As prior referred gravity field** [MFMF] **is an ocean composed of Infinite oscillating energy dipole on tiny breakages** [|± s²| ≡ [|+(w̄.r)²|↔|-(w̄.r)²|=|λ|] **in a least cycloidal quantized cave the Space [V=$\frac{4\lambda^3}{3\pi}=\frac{4(w^2r^2)^3}{3\pi}$] composed of an inner Electromagnetic wave constituent [E⊥H] , with h =2π/λ , and the reaction to these velocity motions [i.e. the mass m = (pr).w/c² =$\frac{h.w}{2\pi.c^2}$] , with the external energy momentum p =$\frac{h}{2\pi\lambda}$. Simultaneity is succeeded not because of the constancy of light but of the dipole rest continuity cycloidal inner motion of [MFMF] field . Aether ,a, doesn`t transforms into ,k, exactly the amount of k , 1/2Mc², of the aethergy lost to the swift particle , because the outer equilibrium Electromagnetic field of the particle is on its wavelength and balancing happens , on outer cycloidal evolute curve , the anti-field }.** [41]
*Does the swift particle exist by itself as we asserted a few lines earlier? Perhaps, yes, perhaps, no. The essence is that it co-exists with any greater body, and it will do run with **k*** upon the contact of the body with aethergy. But, not all of the body consists of swift particles and the remaining part of it will move with **k<k*** under a force field which may not necessarily be a Coulomb one. And, the*

*total aether released may not be able to transform all potential energy back to **k**, because aether's specialization in Coulomb fields is equivalent to positive efficiency loss when the transformation of other kinds of potential energy is at stake.* **{ Aether ,a, is not released because is the motionless tiny breakages [**$\pm$ s²**| tied together by the Gravity`s Electromagnetic field [**E,H**] and because of Work conservation , never gets less or more.}** *.There will do be such losses in connection with the intermolecular force surrounding thermal energy prompting the workings of the second law of thermodynamics: Minimum energy principle in operation with regard to the swift particle, but maximum entropy principle with respect to any other type of mass, totaling to the second law of thermodynamics, but in a way disturbing the uniformity, the density of aethergy, and disrupting the equilibrium of the system, unless there is a built-in stabilization mechanism. If the system was the outcome of some big bang, this mechanism should be one providing smaller big bangs constantly .* **{ Aether density is constant as above and gravity`s system is not the outcome of any Big-Bang which has never been existed . The Energy radiation system of particles issues after STPL mechanism and maybe represented in Space by the three states of interaction or and positions a) The position of the particle by means of any system to general coordinates or in Cartesian coordinates b) The state of radiation field is determined by the values of the components of the Electric and Magnetic vectors at points of the space , or the field by means of a scalar and a vector potential (***the values of scalar potential as above***) and c) The action of the Particle as a whole on this inside Field (** *the coupling energy of the inner constraints with* **,** *evolute* **) and the action to its outer environment . Maximum Entropy principle is respondent with respect to any other type of masses and energy and is not disturbing the density of gravity field .}**

The big bang incited the greatest etherovortex of all times; this is actually what it was. But, smaller ones, small big bangs may be incited any time by the accumulation of small vortices. More precisely, vortices disarrange the spatial distribution of aethergy. The accumulation of disarrangement may lead by itself to a powerful vortex, which only secondarily could be attributed to motion of mass, because it is the indirect cumulative effect of the relatively weaker vortices from such motion. The scale of the secondary effect may be so large as to reverse the causality running from motion to vortex. Such powerful vortices are the sources of new ethergy production and the cause of a movement of masses toward them, swallowing them, and creating small Creations upon contact with the new Eethergy. If equilibrium is the case, the time-scale of these workings is infinitesimal, because they are such as to be preserving aethergy "density" unchanged. **{Big-bang never incited in this cosmos because of all above referred reasons. Sequence that in this cosmos Space was created before matter → the answer is that Human mind , in front of this dilemma created the outlet in Religious and the Myth of Big-Bang .** *The accumulation of disarrangement may lead by itself   to a powerful vortex is right , because Space Anti-Space being the first disarrangement lead to infinite small vortices which by entering in geometry caves existed as the Sub-space Common Circle* **[13,28] . The stationary Gravity field [±s²] and because of opposite ± dipole , is wave with inner Electromagnetic fields E,P as other particle . The Dark matter [±c̄.s²] breakages where also exist opposite ± dipole, is wave with inner Electromagnetic fields E,P as other particle and moving Dark energy [c̄.∇i] = c² is composed of velocity c = v or c > v therefore their particles are made of heavier than those of other particles . Clusters of galaxies by merging become increasingly larger and because of wave nature, any energy released by their systems is much bigger than all others. [43]** . **Causality running from motion to vortex is the phenomenon of Young`s double slit Dark fringes where energy is then concentrated in wavelength as property of particles as waves , and it is the same as the hedgehog in its cave.} [41]**

*Etherovortices revive masses too, but how do they do it exactly? Let us go back to the **m-k** structure in connection with the swift particle. **k** comes not to destroy the bond **m-e** of this particle, but only to take the place of **e**. This exactly is what revives, namely the replacement of any in general **non-k** energy by **k**. And, this exactly character of the bond of the swift particle is what makes this particle be the one with the least efficiency loss and with unaffected by motion age. For the other forms of **M**, age change depends on the extent of bond change brought about by the above considerations, which change **m-e** to **m-e-k**. The faster a mass is capable of moving, the greater it means its ability to "absorb" **k**, and the less the change in its bond, or according to the terminology used until this subsection, the less the change in its hypostasis. Responsible for hypostasis change from the viewpoint of its manifestation as constant discontinuity is the automatism of aethergy's workings that is needed to maintain its own continuity.* **{ Etherovortices m-e doesn`t revive masses because with a-k consist two different quaternion and so Aether density a-k  is constant and being also a separate gravity`s system is not changed to m-e-k or ,k, or be absorbed .The m-e is a separate particle with constant work which reacts only with the others and absorbs or gives energy while with a-k is only reacting . Generalized mass M of m-e is not changed to m-e-k but to M.e }**

*In other words, as far as overall system equilibrium is concerned, the continuous transformation of the structure of **m-e** is needed to maintain **a-k** unaltered under of course the regulation of the system by the small big-bang mechanism. Put differently, a continuum of irreversible, irreproducible, unique **m-e**'s is needed to sustain an **a-k** eternally. Or, of course, vice versa; mutuis vis viva. The totals of all substances would remain fixed at the pre-interaction and hence, equilibrium levels, which in turn equilibrium wants energy to be at its minimum but entropy to be maximum given the constancy of total energy. And, since there can be no other quantities of the substances than the pre-interaction ones, these quantities would be the maximum ones too, rendering the quantifications "max-min" superfluous in the description of equilibrium: A system is in equilibrium when both energy and entropy are at equilibrium. Fixing also energy and entropy at their equilibrium levels renders superfluous the distinction between closed and isolated systems. .*

{ Following the above definitions , m-e is not needed to maintain a-k because the independent particles (m-e) have velocity, while gravity base a-k is a Rest material and only the inner velocity of the confined Electromagnetic field exists in the tiny dipole breakages of their Energy -Space .Entropy is the intrinsic energy of [E,H] Electromagnetic field of gravity base and the velocity vector for particles}.

*To conclude, a greater speed than that of light is the one that would move the traveling substance from the one end of the universe to the other at once. But, then the substance would not be traveling, and the speed would be no speed but kinetic energy. The substance would be distributed uniformly everywhere in the universe, waiting to unleash the tremendous kinetic energy responsible for such a state of the cosmos. This is why there has to be aethergy; because there has to be speed greater than that of light for some kind of substance; speed, in terms of mass, but kinetic energy, in terms of this substance. A substance, which is not mass, because the most mass can do from the viewpoint of **k**, is to become a swift particle. A substance for which the speed of mass is not the conjunction of two separate entities, speed and mass, but kinetic energy intrinsic to the substance, as intrinsic as **non-k** energy is to mass. .*

{ A greater speed than that of light is obtained in caves smaller than that of Planck`s where then exists only the rotational energy , *Torsional Momentum greater than that of Planck`s*, The [STPL] line-cylinder as the passage of particles from Absolute [S] Frames (the cave) to all Relative [R] Frames , is the Navel cord , the string of galaxies either for Spaces , Anti - spaces or for Subspaces , *the monad in monad .* Here we have to clarify that the substance is the Work, which is traveling as ,*Work Quantization process* , speed and kinetic energy. This substance is not distributed uniformly everywhere in the universe neither is waiting to unleash the tremendous kinetic energy but is confined in its wavelength or in a smaller tiny volume as above .}

In the ninth, 1878, edition of Encyclopedia Britannica, James Clerk Maxwell (1831-1879) was writing about the energy of light in the lemma for "Ether" (pp. 568-572) that: "If we adopt either Fresnel's or Maccullagh's form of the undulatory theory, half of this energy is in the form of potential energy, due to the distortion of elementary portions of the medium, and half in the form of kinetic energy, due to the motion of the medium." By the term "medium", Maxwell means the aether, having earlier in this lemma dismissed the material hypostasis of it. But, as we saw, half may be potential and half may be kinetic energy if a substance does have material hypostasis: E=2k..Of course, professor Maxwell was unaware of this relationship, but he does seem to be expecting developments on the concept like those presented earlier here...{ **Maxwell is correct in his conclusions and is the first who saw the Electromagnetic**

Displacement current in monads in magnitude below $L_v = e^{i.\left(\frac{N\pi}{2}\right)b=10^-N=-35}$ m . **Euclid and Zenon [15] was the**

first who saw magnitude of Point as $L_v = e^{i.\left(\frac{N\pi}{2}\right)b=10^-N=-\infty}$ m . **The undulatory theory, with half of this energy due to distortion of elementary portions of the medium in the form of potential energy and the other half in the form of kinetic energy is Right only when happening in the same Medium .}** [29…41] and [44].

...TOWARDS A CREATION HYPOTHESIS

From Chaos came forth Erebus and black Night; but of Night were born Aether and Day, whom she conceived and bare from union in love with Erebus… Hesiod, Theogony, (c. 700 B.C.)

Hesiod's Theogony does connote to our physics: In the beginning, there was Chaos, a world in which events were inconsequential and nothing sensible could be made out of it. For example, static electricity would appear temporally before rubbing amber with fur, or spatially somewhere else; and in the place of static electricity nothing or a nuclear blast from some other faraway interaction might be experienced. It was a chaotic world, because there was no time to preserve the sequencing of events, thus depriving the nexus cause-effect of its spatiotemporal dimension. All was random, all was incidental. There was no time or for that matter, anything else that would ensure what comes first and what comes second. Matter phenomena were independent from energy phenomena. In such a world, mathematics did exist, but the lawlessness of physics and chemistry was delivering chaos.

For Hesiod ,

Chaos → **is Primary Point ,A,** the non-existence **, from which came forth , (** through Virtual work) , [9]

Erebus → **is the Space [S] , Anti-space [AS] equilibrium ,** the existence of PNS **,** with infinite points having a ± Charge with $P = 0 \to P = \Lambda \to \infty$ following geometry of points . Time ,t, is not existing and t = 0 . [20]

Black Night → **is the property of stationary Points to exist as caves ds** following geometry moulds **,** *In caves →* **Opposite velocities are crushed** which defines motion **, and thrown OFF the cave through the Six–Triple–Points–Line [STPL] Mechanism ,** (STPL is a Mechanism where Opposites co-exist) **.** Time ,t, is not existing , so t = 0 **. [17]**

Born → **is [STPL] Mechanism ,** a Geometrical mould where Spaces, Anti-spaces, Sub-spaces contribute on a common circle and produce particles and , **which is the Navel cord , the string of galaxies in all universe as separate monad.**

Aether → **is the Gravity`s Rest Medium-Field of Material-Fragment [MFMF] Field ,** *and which Gravity Field dipole is connected by the Gravity Force ,* Time ,t, is Periodical ,T, *Eternal ,* because of the Internal Electromagnetic field of the Gravity Field , (and since σ = 0 then conserve and ,q, is *not created – not destroyed*) **. In Ether is included Dark - matter and Dark-energy which is → the continually Moving with the constant light velocity ,c, and is composed of the two opposite signed elements and the Dark-energy continually effecting on the two fragments separately and are slinging them further , formulating the attracting mixture of the spherical opposite signed heavy and massive highlights elements and the invisible dipole Dark matter-Heaps which repel. The parallel motion of this mixture is not parallel universes but the rolling of the mixture on Gravity field as Base of expanding.** Time ,t, *Eternal and ,*

Day → **are the moving or not** *Particles Fermions–Bosons and Anti-particles* with *The Dark-matter and the Dark-energy in Chaos .* Particles and others are different monads which follow Physical laws between them in the whole. Conceive and bare from union in love with Erebus → is **,** *The Equilibrium,* the joint **,** *of Particles - Anti particles in Spaces , Anti-spaces and Sub-Spaces following all laws of nature* in PNS = (Primary Neutral Space) **}** [27-28] **. i.e.** *Hesiod conceived Creation Hypothesis, with the then existing Instruments, and later centuries Euclid transformed this idea in Euclidean geometry . In my articles is shown the tightness of Mechanics and Physics with Euclidean Geometry analytically and in this also is shown the tightness of Mechanics and Physics in Philosophy .*

Neither Hesiod nor Euclid defined the **Born Mechanism** (i.e. the How is created Aether and Day) *which is the most important Geometrical mould in this universe and it is* [STPL] *Geometrical mould on cave where Spaces, Anti-spaces and Sub-spaces co-exist on a common circle and by composition of opposites produce particles and send them OFF mould in the line-cylinder and the Relative Inertial Frames . Chaos , Erebus , Black-Night are timeless T = 0 ,* **Born mechanism and** **Aether** *are Stationary but because of the internal Electromagnetic tiny volume, time ,t, is with period T = ∞ i.e. Eternal , in the moving Dark-matter and energy time ,t, is of all types, t =T= ∞ , t = t , while* **Day is moving, and the conversion factor of changes is the meter time t }** . [16-17-18]

But, next, Day, i.e. light out presumably of a thermal source, and Aether, were born from the love, i.e. spontaneous reaction, Big Bang, between Erebus, i.e. matter, and Nyx, the perfectly black night, i.e. a substance having withheld all energy and hence, having the blackness of a black, which cannot be found anymore in nature. That is, Chaos was followed by a separation of matter from energy through the creation of such a substance, aiming at maximizing thermal disequilibrium and giving rise to a Big Bang. That substance is the aethergy, whose spontaneous reaction with matter made matter move, separate aether from kinetic energy, and develop out of this energy light-producing non-kinetic energy... According to Orpheus, Night, rather than Chaos, is the first principle…

Aether is the substance ordering universe as described by our physics, which now may be completed as follows. The process under the small Creations, mentioned in the end of the last Section, regenerates the perfect black or at least darker blackness than the rest in nature and hence, this type of vortices may be called black warps, reflecting at the same time this term the abrupt disruption in the spatial distribution of ethergy. Black warps are the primary source of new ethergy and matter, keeping the overall system in equilibrium. Without them, which separate Nyx from Erebus again and again, all cosmos would be tending to become ethergy, Night... Wherefore also these Kinds [elements] occupied different places even before the universe was organized and generated out of them. Before that time, in truth, all these were in a state devoid of reason or measure, but when the work of setting in order this Universe was being undertaken, fire and water and earth and air, although possessing some traces of their known nature, were yet disposed as everything is likely to be in the absence of God; and inasmuch as this was then their natural condition, God began by first marking them out into shapes by means of forms and numbers..

{ The next Day is for Particles to follow the laws of Inorganic and Organic Chemistry to form Atoms, Molecules, bodies etc. embedded in Gravity-Field and in Spaces-Anti-spaces and Sub-spaces. Laws follow Mass conservation which is Energy conservation which leads to equilibrium and energy-quanta for the Definite and Multiple Proportion . The definition of , separation of matter and energy is wrong , because matter is a conversion factor and nothing else which was not existing apriori . Above analysis defines a Space-Energy universe as in [39] and not a Space-time universe . Orpheus is wrong conceiving Night = Caves =Volume as the first principle and not Chaos which is Primary point and Erebus the second . It has been clearly shown that , *Time is designated as the meter of changes , or as the conversion factor , between time (second) and space (meter) units and not essence of Space-energy Configuration* . Time exists only in motion which issues only for moving particles (Day) .
Energy equations of Virtual Work issues for Rest Spaces , for equilibrium of opposites in caves and monads and do not need time because t = s / v and inner motion is periodical with T = 0 for *Time-less* space and T= constant or infinite , *Eternal* , for fields .This age–old question , *of what is time* , was standing for many centuries in Philosophy, and has been recently adopted by GR by considering Time as an essence of Space-time and thus confined in an eternal adventure of nothing , and accepting also the wrong base on which are Non-Euclidean geometries without elucidating the base of its Physical-content [17] }. [38]
Plato (Timaeus, 17)
Indeed, myths appear to be are truth in the form of allegories and fairy tales. They seem to save phenomena when the knowledge about them vanishes from memories when socioeconomic and political circumstances dictate so, when adjustment to such priorities changes individual and collective priorities for a long time. Myths save phenomena sociologically but wisdom problems like the triad Quadrature-Doubling the Cube-Trisection, predispose towards the rediscovery of this knowledge.
The three Milesian philosophers, Thales, Anaximander (c.610-c.546 B.C.), and Anaximenes (585-528 B.C.), suggest that the pre-Creation world was boundless. If this were so, indeed, then according to this manuscript, here, one more perhaps characteristic of the Creation was to endow space with finiteness. There is a transition in ancient Greek thinking from Chaos to Apeiron; both are connected with the infinite, and it seems that Apeiron is the ordered one whereas Chaos connotes disordered infinite. The Creation according to Milesians, put some good order to the infinite, and I maintain that one more characteristic of this order was the finiteness of the infinite of space. One striking resemblance of my theory here with the position of the Milesians about the origin and character of the cosmos, is that "genesis and decay", small creations, small big bangs, according to this monograph, will never stop. Aristotle explains that it is in this temporal nexus that the notion of apeiron was held by the Milesians. Nothing is going to happen to the cosmos for as long as its "batteries" of small creations work, indeed.

{ Wisdom tetrad problems , Quadrature (*a trial in* [8]) , Doubling the cube (*a trial in* [10]) , Trisection (*The solution in* [11]) , The Parallel Postulate (*The solution in* [9-32-38]) , predispose the right direction for acquiring the Euclidean logic . The three Milesian philosophers define Chaos is the Apeiron , *the very great or big or long* , and in this way it is *Erebus ,*which is a step after Hesiod .The good order to the infinite in *Black night* and has to do with , *genesis and decay*, two steps after chaos. Aristotle with temporal nexus is referred to *Aether and Day* . The Platonic position , *Nothing can exist if it doesn`t contain continually and simultaneously the limited and the unlimited , the definite and the indefinite,* is right because is referred to *Erebus* , approaching to Chaos and because all existence is incorporated in all substitutes of point (*space*) and energy (*the equilibrium of space*) . Pythagoreans trying to find the incommensurability of numbers were confined in *Black-Night* and thinking that numbers is the essence of universe. Only Hesiod philosophically conceived this outstanding reality.}
*Moreover, these considerations appear to make justice to Pythagorean and Platonic position that: Nothing can exist if it doesn't contain continually and simultaneously the limited and the unlimited, the definite and the indefinite (Plato, Philebus, 16). Unfortunately for the Pythagoreans, it was too early to find out that this is the context within which empirical content is conferred to the incommensurability of numbers, which they had discovered. For us here, in empty space, numbers do constitute Platonic forms. But, in the space filled with **a-k** and **m-e**, uniqueness, irreproducibility, irreversibility of events implies that only number one exists in Cosmos. It is a different matter if man needs the Arithmetic, Mathematics, and Geometry to study the Cosmos. The truth is that it is a numberless and timeless Cosmos. And, the only Platonic form left to speculate upon outside Plato's Cave in an Aristotelian fashion, is the "Archer", (Αρχή).*

Properties on < Creation Hypothesis > of Euclidean Space-Energy Configuration Geometry [39-41]

1..Primary Point is nothing and is the only Space.[*Chaos*]

2.. *Since Primary point ,A, is the only Space then on this exists the Principle of Virtual Displacements* (the How)
$W=\int_A^B P.ds=0$ or [ds.(P_A+P_B)=0], i.e. for any ds>0 Impulse P= (P_A+P_B)= 0 and [ds. ($P_A+ P_B$)=0] ,Therefore, Each Unit AB=ds> 0, exists by this Inner Impulse (P) where $P_A + P_B = 0$. → i.e. The Position and Dimension of all Points which are connected across the Universe and that of Spaces exists , because of this equilibrium Static Inner Impulse ,on the contrary should be one point only (Primary Point A= Black Hole→ ds =0 and P = ∞) , as the repellency of A , B points by (P_A), (P_B) forces ↔ [{A(P_A) ←0→ (P_B)B}] . [17, 22]

All points may exist with P = 0 → (PNS) and also with P ≠ 0 , (P A + P B = 0) , for all points in Spaces and Anti – Spaces, therefore [PNS] is self-created , and because at each point may exist also with P ≠ 0, then [PNS] is a (perfectly Homogenous , Isotropic and Elastic Medium ,*in spatial and Temporal domain*) Field with infinite points which have a ± Charge with P = 0 → P = Λ→ ∞ and work (W) is quantized on material points as spin ± (p̄) and from this equilibrium of the quantized angular momentum $\overline{\Lambda}$, independently of time , is capable of forming the wave nature of Spaces, following the Boolean logic and distorting momentum p̄ = Λ̄ , as energy, *on the intrinsic orientation position of points*, on all points of the microscopic and macroscopic homogeneity , and since also in common circle rotational velocity ,w̄, and momentum , Λ̄, are constants and thus consist a Pure quaternion ,so conjugation of the two is as $(\partial/\partial t , \overline{w}) © (0,\Lambda) =$ (-Λ,wxΛ) = (- $\overline{HxP}, \nabla x \overline{\Lambda}$) = [λ,∇ x Λ̄].[13-15] . [*Erebus*]

3.. The work W , of the two opposite dipole $\overline{A}B$, $\overline{B}A$ in the same plane is equal to W = [n.P.ds] = [λ =ΛΛ,ΛxΛ] where, λ. = displacement of A to B and it is a scalar magnitude called wavelength of the new dipole Ā B.
Λ = the amount of rotation on dipole $\overline{A}B$, (this is angular momentum L̄ , and it is a vector parallel to ,a, axis . Momentum ± Λ = r.m.v = r.m.wr = mr².w, where ,r, is the radius and angular velocity w̄ = (spin) which maps velocity vector v̄, on the perpendicular to ,a, axis plane with the two components v̄ E ⊥ v̄ B . Tangential velocity v̄ E = w̄.r is a quaternion v̄ E = w̄.r = z̄ = [s + v̄.∇i] where s = |v̄.E| = |r̄.w̄| and v̄.∇i = |w̄xr̄| = |w̄|.|r| ⊥|w̄|.r where the two opposite biaxial ellipsoid equilibrium and it is the How conservation it happens .[26]. [*Erebus*]

4.. Momentum p̄ = Λ̄ on the infinite dipole AiBi of spaces with a momentum lever equal to zero (0) or equal to wavelength ,λ, create *linear motion*, while with a momentum lever ≠ 0 creates the *rotational motion* (Euler , Coriolis , Centrifugal) →m.[(d²r̄/dt²) + m.[|dw̄/dt|xr̄ + 2w̄x(dr̄/dt) + w̄x (w̄xr̄)]] where momentum p̄ = m.rw̄ and mass m is a constant equal to , *the Reaction to the motions ,* or as Inertia (I) which are a natural property of dipole and both are conserved vice versa. Forces dP = PA-PB parallel to the Space, Anti-Space lines [S]⊥ [AS], create a Static force field B , and when Forces dP are perpendicular to the Space Anti-Space lines , create a Static force field E , which experience *Lorentz force* and it is the fundamental interpretation cause of motion , in small and large scales Spaces .On all dipole of wavelength ,λ, and momentum Λ , their product λ.Λ = k 1,2,3 constant for each energy cave level. The fundamental force in universe is the total kinetic energy T = 1/2w̄L = Σ(L²/2.I) , a repulsive force following Pythagoras conservation law such that both T , *kinetic energy* , and L , *Potential energy* , be conserved (when T decreases then this lost energy is transferred to angular momentum L and vice versa *, in* L *by changing angular velocity vector* w̄, differently is needed a speed faster than that of light which may happen elsewhere .
Energy is conserved on three perpendicular fields J,E,B, *on dipoles such that the total kinetic energy to be the diagonal of the cuboids* and it is the How this conservation happens [18-19] . [*Erebus+Day*]

5..Geometrical caves : *Nature has not any <meter> to measure quantized quantities (that of Space and of Energy) except these of the Geometry constants , one of which is number π (Archimedes number π) so quantization of Points (λ) follows geometry constant (π) and for Energy* Wd *, which is the quantized Energy of the Quantity dissipated per cycle ,* [*and this because monads follow sinusoidal oscillation on wavelength = monads as the* **w**.*th power and the* **n**.*th root of this monad where* **w.n =1** *as above on and in the same monad*] *and which energy is equal to,* Wd = ∫ẋ.dx= ∫Cẋ².dt = (πCw).λ²/4= (2π²C.λ²/4).f = (mπ.λ²/2).f = C.**f** i.e. From above monads (s+ v̄ ∇i) ¹/ ᵂ = |zo| ⁻ᵂ.e^ - i.(φ+2kπ).w where cosφ = s/|zo|, and for Rotated Energy case where **s** = 0 and also cos.φ = 0 exists for angle φ = π /2 , the quarternion

(s+v̄ ∇i)¹/ᵂ *as dimension power w=b and it is as* $e^{-i.\left(\frac{\pi}{2}+2k\pi\right).w}= e^{-i.\left(\frac{5\pi}{2}\right).b}= e^{-i.\left(\frac{5\pi}{2}\right).10}$ where Lp = $e^{i.\left(-\frac{5\pi}{2}\right).10}$ is the basic Geometrical interpretation of < *Planck scale meter* > based on the two *Geometry constants* e ,π where **k =1**, and *base* **b** = 10 ,and this from logarithm properties with different bases on the same base **e** [when eʸ= x then base e logarithm of x is

ln(x)=logₑ(x) = y] as it is eᵂ=(b^{log(b)e})ᵂ= b^{w.log(b)e} and $\sqrt[w]{e}$= e^{1/w}=e^{-w}= x^{\frac{1}{w}.log(b)e} *which are monads in monads and is of* ***Wave motion*** *with angular velocity* **w = 4.Wd/(π.C.λ²) ,** i.e. **Space and Energy is quantized and measured on the two Constant and Natural numbers e , π** . **where** *for base* **the natural logarithm ,e,** *and exponent* **the decimal base , b = 10 , then issues** → *During Diffraction ,*ds̄ *, frequency ,*f, *doesn't change and only the velocity ,*v̄, *and wavelength ,λ, changes and the Total Energy is* [z̄ ¹/ᵂ = |z̄o|⁻ᵂ.Lo] .Again because → **z**¹/ᵂ = (s + v̄ ∇i)¹/ᵂ = |zo|⁻ᵂ. [cos.(φ + kπ)/w + i.sin.(φ + kπ)/w] = |zo| ⁻ᵂ.e ^ i.(φ + kπ) / w , and then
For cos.(φ+kπ)/w = 0 then exists only the Imaginary part of monad ,(v̄∇i)≠0 ,where φ = π /2 and then **z**¹/ᵂ = |zo| ⁻ᵂ. e ^{i.(φ + kπ) / w} = ± **i. (π/2 + kπ).10** and it is the ***Diffraction Energy mechanism*** for all Space Levels of quantization which are **Energy Particles only** i.e. Energy particles are then where **z**¹/ᵂ = |zo| ⁻ᵂ. Lv = → ***Energy Monads*** .

For sin.(φ+kπ)/w = 0 then exists only the Real part of monad ,**s**, ≠ **0** , where φ = - π ± k.π and then spaces
z¹/ᵂ = |zo| ⁻ᵂ .e^{i.(φ + kπ) / w} = ± **i.(- π ± kπ).10** and it is the ***Diffraction Massive mechanism*** for all Space Levels of of quantization which are particles with mass ,*the reaction to the motion*, only.

Extending **Lv** = $e^{i.\left(\frac{\pi}{2}+2k\pi\right).b}$= $e^{i.\left(\frac{\pi}{2}+2k\pi\right).10}$ then ,
For base e = 2,71828 and k = 0 Lv = e^i.(± π/2) b then e^ (-15,7079) = 1,78118 .10 ⁻⁷ m *Energy Balanced*
For base e = 2,71828 and k = 1 Lv = e^i.(-3.π/2) b then e^ (-47,12389) = 5,344 .10 ⁻²¹ m *Energy Balanced*
For base e = 2,71828 and k = 2 Lv = e^i.(- 5.π/2)b then **e^ (-78,5398) = 8,906 .10 ⁻³⁵ m** *Planck`s Length*
For base e = 2,71828 and k = 3 Lv = e^i.(- 7.π/2)b then e^ (-109,9956) = 2,295 .10 ⁻⁴⁸ m *Layer Length*
For base e = 2,71828 and k = 4 Lv = e^i.(- 9.π/2)b then **e^ (-141,372) = 3,969 .10 ⁻⁶²** m *Gravity Length*
For base e = 2,71828 and k = 5 Lv = e^i.(-11.π/2)b then e^(-172,7876) = 9,593 .10 ⁻⁷⁶ m *Layer Length*
For base e = 2,71828 and k = 6 Lv = e^i.(-13.π/2)b then e^(-204,2040) = 7,155 .10 ⁻⁸⁹ m *1ˢᵗ Layer Length* … .

For base e = 2,71828 and base b =10 then e^ - (78,5398) =8,906. 10^{-35} m and divided by 2π= 1,616199. 10^{-35} m since cave is a versor and then →

Planck's Length Lp = $e^{i.(\frac{\pi}{2}+2k\pi).b}$= $e^{-i.(5\frac{\pi}{2}).b}$ = $e^{i.(-5\frac{\pi}{2}).10}$ = $e^{-.(78,5398).}$= 8,906 .10^{-35}m = {√3.π 1,616199.10^{-35} m}
Conservative Planck's constant L-Planck=1,616.$\mathbf{10^{-35}}$ m=√h.G³is consisted of the three compromising constants h,G,c, instead of geometry cave Lp = $e^{i.(-5\pi/2).10}$, which is based on the two natural constants e ,π. [29-30] [*Black-Night*]

6.. The action of a quaternion on point is equivalent as -*Energy Density and Pressure*- the state of stress at a point on the deformed placement or new configuration which is on the directional axis of the point. *Gravity* exists upon the point axis as [|d$\overline{w}$/dt|x $\overline{r}$+2$\overline{w}$x(d$\overline{r}$/dt) +$\overline{w}$x($\overline{w}$x$\overline{r}$)]where angular velocity is $\overline{w}$ = |$\overline{\Lambda}$| / |$\overline{r}$|= k/(λm) and so exerts a direct action between two events, *i.e. Stationary points of [PNS] are rotating dipole and may be pictured as wave existing in the infinite points of Spaces and exerting an action (pressure) on the moving Spaces , dipoles . The Stability is achieved by the Anti-space and it is the How happens the interaction and equilibrium in spaces* . [39] . [*Erebus + Aether*]

7..In Black hole Energy scale (λ . Λ = k 1) there are infinite high frequency small amplitude vacuum fluctuations at Planck energy density of 10^{113} J/m3 that exert action (pressure) on the moving Spaces dipole and their Stability is achieved by Anti-space also. A wide analysis for gravity force and gravity medium is shown in Maxwell`s Displacement field [39-40-41] . [*Black-Night +Aether +Day*]

8..The force between two charges (+q) – (- q) of distance ,s, create an Electric field (-E) ,(+E) of Potential U = q.E. The force between the two charges is a) Attractive or b) Repulsive , *when both are Sources or Sinks and particles repel for equal charges , E=k.(2q/s²).* For non-uniform fields the force on the two equal but of opposite point charges do not cancel field. The dipole will rotate to align with the field , hence there must be a torque [To = $\overline{q}$xE] on the dipole as well .

9.. Dipole vectors are quaternion`s (versors) of waving nature , i.e., one wavelength in circumference in energy levels , that conserve energy by transferring Total kinetic energy T into angular momentum L = $\overline{r}$m$\overline{v}$ = $\overline{r}$p = $\overline{r}$Λ ,where mass m = is a Constant . Different versors with different Energy (scalar) possess the same angular momentum. A Composition of Scalar Fields (s) and Vector Fields ($\overline{v}$) of a frame , to a new unit which maps the alterations of Unit by rotation only and transforms scalar magnitudes (particle properties) to vectors (*wave properties*) and vice-versa , and so , has all particle-like properties of waves and particles . In Planck Scale, when the electron is being accelerated by gravity which exists in all energy levels as above, the gravity is still exerting its force . Matter is built out only from the primary dipole AiBi .

In a spherical cave the Biaxial Ellipsoid (σx = σy) exists as momentum + Λ on caves of diameter 2r with parallel circles→ 0 . The Biaxial Anti-Ellipsoid (-σx = -σy) exists as equal and opposite momentum - Λ on the same diameter 2r with anti - parallel circles 2r → 0. Equilibrium of the two Ellipsoids ± Λ, presupposes a Stabilizer system attached to Ellipsoids such that opposite Momentum is distributed to the Center of Mass of the total system and, recover equilibrium, which is the center of the spherical cave. The Biaxial Ellipsoid and Anti-Ellipsoid are inversely directed and rotated in the same circle, so the two opposite velocity vectors collide. This collision of the two opposite velocity vectors is the Action (Thrust) of the two quaternion and it is, Action of quaternion`s (s +$\overline{v}$.∇i)(©)(s +$\overline{v}$.∇i) = [s +$\overline{v}$.∇i]² = s² + |$\overline{v}$|².∇i ² + 2|s|x$\overline{v}$.∇i = s² - |$\overline{v}$| ² + 2|s|x|$\overline{w}$.r|.∇i = s² - |$\overline{v}$| ² + [2$\overline{w}$].|s| |r|.∇i …(3-a)   where,

[+s²] → s² = (w.r)², is the real part of a new quaternion which is, the positive Scalar product , of Space from the same scalar product ,s,s, with ½ ,3/2,,, spin , and represents the , Space , part of quaternion , *the minimum Space - Quanta .*
[-s²] → - |$\overline{v}$| ² = |$\overline{w}$.$\overline{r}$|² = - [|$\overline{w}$|.|$\overline{r}$|]² = - (w.r)² → is the always , the negative Scalar product , of Anti-space from the dot product of ,$\overline{w}$, $\overline{r}$ vectors ,with -½ ,-3/2,, spin , and represents the , Anti-Space , part of quaternion , *the minimum Anti - Space Quanta .. [Day in Erebus]*
[∇i] → 2.|s| x |$\overline{w}$.$\overline{r}$|.∇i =2|wr|.|(wr)|.∇i = 2.(w.r)² → is a vector of , the velocity vector product , from the cross product of ,$\overline{w}$,$\overline{r}$ vectors with double angular velocity term and represents the , Velocity vector product , of quaternion giving 1,3,5, spin , *the minimum Energy - Quanta* .(this the How Particles are originated) . [35] ,

10.. [STPL] Mechanism : [35-36]
1.. [STPL] is a ***Geometrical Mechanism***   that produces and composite all opposite space Points from Spaces (A-B-C) , Anti-Spaces (AE ,BE,CE) and Sub-Spaces (KAKBKC) in a Common Circle , *Sub-Space* , line or cylinder .
2.. Points A,B,C and lines AB,AC,BC of ***Space , communicate with*** the corresponding AE ,BE,CE and AEBE, AECE ,BECE , of ***Anti-Space*** , separately or together with bands of three lines at points PA ,PB,PC , and with bands of four lines at points DA,DB,DC *on common circumscribed circle* (O,OA) ***Sub-Space***.
3.. If any monad AB (*quaternion*) , [s, $\overline{v}$.∇i] , *all or parts of it* , somewhere exists at points A ,B ,C or at segments AB ,AC ,BC then [STPL] line or lines ,is the Geometrical expression of the Action of External triangle KAKBKC , *the tangents as extrema is the Subspace* , on the two Extreme triangles ABC and AEBECE (*of Space Anti- space*). 1,3,5, spin , *the minimum Energy - Quanta* .(this is the How Opposites combine to produce the Neutral) . [*Born*] and ,

In the recovery equilibrium (*a surface of a cylinder with 2r diameter*), and because velocity vector is on the circumference, the infinite breakages identify with points A,B,C (of the extreme triangles ABC of Space ABC) and with points AE , BE, CE (of the extreme triangles AE.BE.CE of Anti-Space) all, on the same circumference of the prior formulation and are rotated with the same angular velocity vector $\overline{w}$.The inversely directionally rotated Energy ± $\overline{\Lambda}$ equilibrium into the common circle, so Spaces and Anti-Spaces meet in this circle which is the common Sub-space. Extreme Spaces (the Extreme triangles ABC) meet Anti-Spaces (the Extreme triangles AE.BE.CE), through the only Gateway which is the Plane Geometrical Formulation Mechanism (mould) of the [STPL] line, or as cylinder .[17]

The →[Space, Anti- Space equilibrium , $\pm \overline{\Lambda}$, Absolute System [S] ←] , as Angular momentum $\overline{\Lambda} = \Omega = m.v.r$,is Crushed out into Fragments and , becoming the three Breakages [$s^2 =(wr)^2$] , [- $s^2 = - (wr)^2$] , [$\nabla i =2(wr)^2.$] ,and after clashed with the velocity vector $\overline{v}$ of [S] , (unless succeed to escape unclashed through centre O in STPL line and this because $\overline{v} = 0$) , are Thrown OFF this System [S] , conveyed into the Linear momentum , the Inertial and Energy-Space , the Relative [STPL] System [R] as Particles Fermions →[$\pm\overline{v}.s^2$] and Bosons →[$\overline{v}.\nabla i$] .[27] [*Black-Night , Born*]

11.. The work W , of the Gravity is effecting on (-) Field-Medium only for the equilibrium of spaces.
Electromagnetic waves are created by the vibration of an electric charge. This vibration creates a wave which has both an Electric and a Magnetic perpendicular component. (this is the How Work as Energy , travels). [41]

Work as Energy is Quantized , converted ,in Space monads , caves , cells , $\overline{x}=d\overline{s}=\lambda m$, as pressure σ ,τ , the pressure is converted as velocity in caves and a Standing Electromagnetic Wave E,P *which consists the Standing monad (Displacement current) and the moving Energy monad (by altering the inner wavelength or Period of monad) in Gravity`s field medium* [MFMF] *and is dissipated as Quaternion monads (Particles or Waves , matter or vectors) as Forces (displacements , masses , pressure etc.) using modulus , coefficients , reactions to the motion and all other geometrical indices. Stability In-Out wavelength is obtained by the Isochronous Anti-Standing Electromagnetic Wave* E,P *which happens on Anti-cycloid , Evolute , and whirling , Curl , by the equality of the two transverse Complex Envelope displacements, Amplitudes , that consist the Standing monad (Displacement current in monads).*[40] [*Aether*]
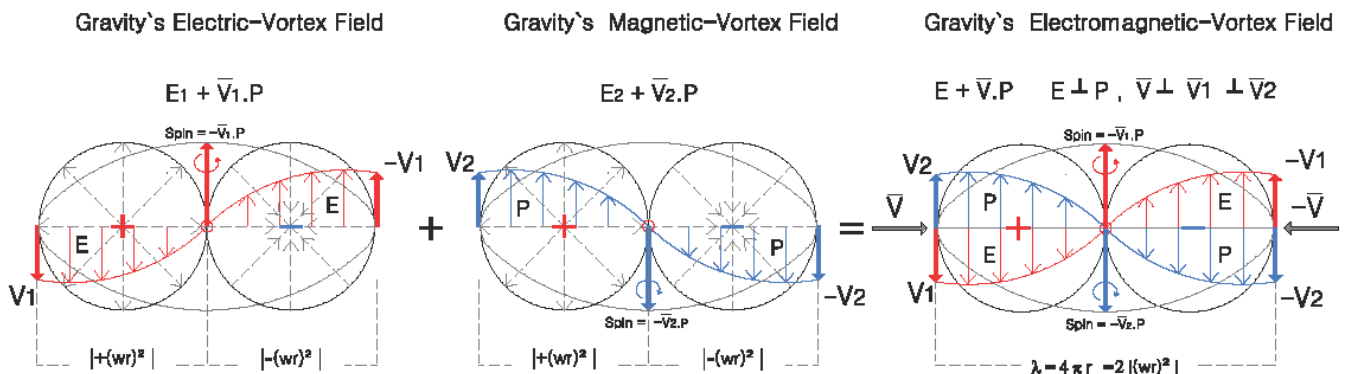
12.. In [33-35] Un-clashed Fragments through center O , consist the Medium-Field Material-Fragment → [$\pm s^2$] = [MFMF] as base for all motions , and Gravity as force [∇i] , while the clashed with the constant velocity ,$\overline{c}$, consist the Dark matter [$\pm \overline{c}.s$] and the Dark energy [$\overline{c}.\nabla i$] ,or from → Breakages [$\pm s^2 = \pm (wr)^2$] and [$\nabla i = 2(wr)^2$] then become,

    A..[$\pm\overline{v}.s^2$] → Fermions and [$\overline{v}.\nabla i$] → Bosons
    B..[$\pm s^2$] → [MFMF] Field and into Field [∇i] → Gravity force
    C..[$\pm\overline{c}.s^2$] → Dark matter[$\overline{c}.\nabla i$] → Dark energy.

All particles are characterized by their quantized cave the minimum Space [$V = \frac{4\lambda^3}{3\pi} = \frac{4(w^2r^2)^3}{3\pi}$] composed of an inner Electromagnetic wave constituent [E⊥H] ,$h=2\pi/\lambda$, *the reaction to these velocity motions the mass* [$m= (pr).w/c^2 = \frac{h.w}{2\pi.c^2}$], the external energy momentum $p = \frac{h}{2\pi \lambda}$ and Spin (the helically rotating electric field vector corresponding to a circularly polarized Electromagnetic wave propagating with attenuation to velocity`s direction) . Conservation laws of energy linear and angular momentum are satisfied by the inner Anti-cycloidal motion , ( on the evolute curve ) .This interpretation applied to < Young`s interference and Polarizer experiments > is shown the unified understanding between the classical Electromagnetic field and the quantum particle .(this the How Particles are originated and the How their nature is) . [*Day*]

13.. GRAVIDY- FIELD , GRAVITY- FORCE .

The two ,opposite signed, Fragments $s^2= \pm |(\overline{w}.r)^2|$ consist the under Gravity primary Dipole , [$|+s^2|\leftrightarrow|-s^2|$] = $|\lambda| \equiv$ [$|+(\overline{w}.r)^2|\leftrightarrow|-(\overline{w}.r)^2|$] where on this, Force [$\nabla i= 2.s^2 =2(wr)^2$] as velocity $\overline{v} = \overline{c}$, *The Thrust* , **cause** Gravity`s Electromagnetic Field E⊥P as → [∇i].(+s^2) , [∇i].(-s^2) , [∇i].|($\pm s^2$)| = [∇i].[$|+s^2|\leftrightarrow|-s^2|$] , [40-41] .

In Fig-1 . *Fragments* $[(+|wr|^2) \leftrightarrow (-|wr|^2)]$ *as Dipole are joined by Gravity Force that causes the Electromagnetic Gravity - Field → a forced welded spinning dipole.*

It was referred that Fragments $s^2 = \pm |(\overline{w}.r)^2|$ occupying the minimum quantized space $|s^2|$ are deported and fill all [STPL] cylinder which is the Rest Quantized Field $\pm [(\overline{w}.r)^2]$ or it is, ***the material point in mechanics*** , as the base of all motions where force $[(\overline{w}.r)^2\nabla i] = 2.[(\overline{w}.r)^2]$ is vibrating on length $2.|[(\overline{w}.r)^2]| = \lambda$ as a Stationary Wave, and creates the curl Electromagnetic Field E ⊥ P , on which is the Universal Quantized force called Gravity. The Gravity - Force is equal to , Fg = q.[E+$\overline{v}$xP] and is exerted on any movable particle with charge $\overline{q}$.
Gravity - Field is Gf = [E+ $\overline{v}$xP] , the unmovable ,*forced welded spinning dipole ,* and because jointed with force , means that Newton`s laws issue in both , Absolute System [S] and Relative System [R] .
On cycloid , Thrust → g = Force F = velocity, where Velocity $\overline{v} = [\sqrt{g/4r}].\rho = [\sqrt{g/4r}]$. $|(1)-(2)|$.
Acceleration $\overline{a} = (d^2s/dt^2) = - (g/4r)$ .s
Trajectory acceleration $\overline{a}q = g.\sin\varphi = [g/4r].s$
Centripetal acceleration $\overline{a}r = (v^2/\rho) = [g/4r].\rho = [g/4r]. AA`$ , where point A` is on anti-cycloid .

Ratio $v/\cos\varphi = \sqrt{4gr}$ = constant and velocity of center K of rolling circle is, $\bar{v}k = v.r/PA = (1/2).v/\cos\varphi = \sqrt{gr} \rightarrow$ i.e. The motion , *the velocity*, of the rolling circle center is linear.

Force $2.[(\bar{w}.r)^2]$ as velocity $\bar{v}$ is acting at point (1) and since dF=0 then is analyzed into the two equal velocity vectors $\bar{v}x = \bar{v}1 = (\bar{w}.r)^2\sqrt{2}$, $\bar{v}y = \bar{v}2 = (\bar{w}.r)^2\sqrt{2}$ as the cross-product $\bar{v} = \bar{v}1 x \bar{v}2$ i.e. in two perpendicular plane motions.

Energy as the horizontal constant velocity $\bar{v}1 = $ (*thrust*) , is transported at point (2) by following the tangential trajectory at A , forming on cycloid the Electric field ,E, and for stability the anti-trajectory A` on Evolute , the Anti-Electric field - E , both decomposed in a velocity $\bar{v}1r$ perpendicular to the trajectory and thus executing zero work , and $v1q$ tangential to the trajectory executing the work . The equation of Gravity`s Standing waves E,P is from Wave function ,

$Y = [2A\sin kx].\cos wt = [2A\sin\left(\frac{2\pi}{\lambda}\right).x].\cos 2\pi(\frac{t}{T})$ *wher*e A = v1 = v2 = $|v|/\sqrt{2}$ $\rightarrow$ Wave`s Amplitude ,

$kx = \pi/2, \pi, 3\pi/2, 2\pi$ $\rightarrow$ The Wave`s number , *location* , $w = 2\pi f = 2\pi/T \rightarrow$ Oscillating frequency , *angular frequency* and equations become

$E = 2A.\sin kx.\cos wt = \sqrt{2}.|(wr)^2|.\sin kx.\cos wt$

$P = 2A.\sin kx.\cos wt = \sqrt{2}.|(wr)^2|.\sin kx.\cos wt$ *which consist the Gravity`s Electromagnetic wave equations ,*

The energy of a particle which is the intrinsic stored work , is the Energy flow Sp=ExH along the direction of motion. Particles have either rest or motional mass or both . From Lagrange`s equations of the first kind,  $2E = mv^2 = (mv).v = p.v = p.(wr) = (pr).w = (pr).[2\pi/T] = 2\pi(pr).[c/\lambda] = hc/\lambda$ since  $\lambda = cT$  , and  $2\pi(pr) = h =$ Planck`s constant **i.e.** $\rightarrow$ **mass m =** $(pr).w/v^2 =$ the meter of reaction to the motion $\leftarrow$ and $\rightarrow$ **momentum p** $= 2\pi(pr).[c/\lambda]$ the Anti-reaction $\leftarrow$ and for v = c = velocity of light , then Planck`s energy equations for

mass **m** $= (pr).w/c^2 = \frac{h.w}{2\pi.c^2}$ and momentum **p** $= \frac{h}{2\pi\lambda}$ where ,

w = Particle`s oscillation frequency which is that of inner common circle and it is constant , and ,r, the rolling circle`s radius . All waves oscillate with energy $2E = p.v = [pr].w$,which awareness translational motion (pr) at light ,**c** and rotational at spin(w) motion in helical behavior . The Work Quantization process occurs as this compound helical motion and is conserved in < *translational motion* (pr) *and rotational motion at spin*(w) > wavelength of particles (*monads*) following all known physical laws. Plane wave`s Energy is stored as Stationary wave`s Energy in case (*knot points*) of wave Interference .

The equal phase , Plane Wave equations are ,

$A_{x,t} = A_o.\cos(kx - wt + \varphi)$ where $k = 2\pi/\lambda$, $w = 2\pi/T = 2\pi f$, $\varphi = kx$, $c = \lambda/T = \lambda.f = w/k$

$E_{x,t} = E_o.\cos(kx - wt)$ *Electromagnetic waves* . , $H_{x,t} = H_o.\cos(kx - wt)$

$S = [\bar{E}x\bar{H}]/\mu = [|\bar{E}|x|\bar{H}|].[S_{o/\mu}].\cos^2(kx - wt)$ *Energy density*   with translational outer velocity $\bar{v}(t) = p / m = \bar{\Lambda}/m$.

The equal phase , Stationary Wave equations

$E = 2A.\sin kx.\cos wt = 2.A.\sin(\frac{2\pi}{\lambda}).\cos wt$ $P = 2A.\sin kx.\cos wt = 2.A.\sin(\frac{2\pi}{\lambda}).\cos wt$ where

$A = v1 = v2 = |v|/\sqrt{2}$, $kx = \pi/2, \pi, 3\pi/2, 2\pi$, $w = 2\pi f = 2\pi/T$ with inner velocity $v(i) = \lambda/T = \lambda.f = w.r$ and phase velocity $\bar{v}(r) = w / k = w\lambda/2\pi$.

The pressure Amplitude $P_d = \rho.c.w.A_o = \rho.c.w. [\varepsilon E^2 + \mu H^2] /2$ and   ***Intensity of Dark-Fringes*** $I_d = \frac{\rho\pi^2c^3}{2\lambda^2}. [\varepsilon E^2 + \mu H^2]$

Energy $I_d = \frac{\rho\pi^2c^3}{2\lambda^2}[\varepsilon E^2 + \mu H^2]$ ***in volume*** $V = [\frac{4(w^2r^2)^3}{3\pi}] \rightarrow$ ***Particle Energy*** $I_d = (\frac{\rho.c}{2}).(wA_o)^2$ ***in Interference pattern*** $\rightarrow$ ***Wave***

14.. DARK MATTER – DARK ENERGY .

The Continuous [***Geometrically Rolling*** , ***Moved mixture*** **DM-DE**] *Expansion* for the constructing universe.
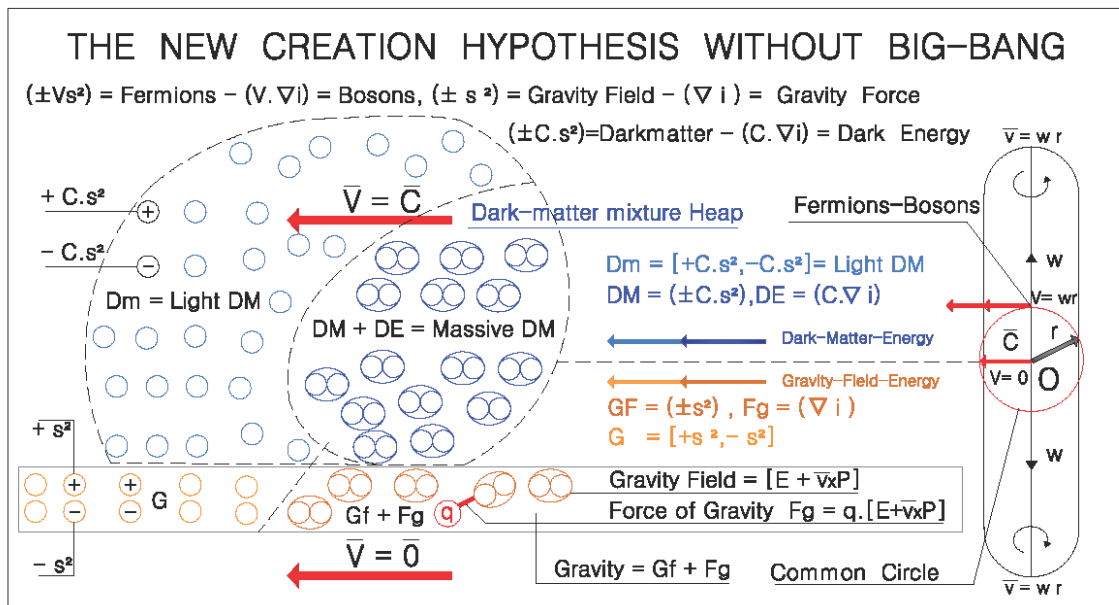

Fig-2. The Cause Expansion of the Universe , is the continuous and simultaneous Rolling of mixture [DE-DM] *which is the Fragments heap*, on the Rest Gravity-field [Gf+Fg] as Base of rolling.

The three properties of Dark-matter [DM]→ [(+c.s²),(-c.s²),(±c.s ²)] and Dark-energy [DE] →[c̄.∇i] :
Since [DM] = ±c̄.s² , is of opposite signed (±) , then consists the Dipole , [|+c.s²|↔|-c.s²|]=|λ|≡[|+c.(w̄.r)²|↔|-c.(w̄.r)²|] of Dark matter which is a more massive base than that of gravity , *and this because of ,c*, so issues DM field = [E_m+ c̄.P_m]
= [c.E_g+ c̄².P_g] and as this is also a Stationary field then follows equation E_m= 2.A.c.sin($\frac{2\pi}{\lambda}$).cos wt where P_m ⊥ E_m .
Since also the tiny volume of |λ|≡[|+c.s²|↔|-c.s²|], consists a , *sink* , then DM attracts and it is an infinite ocean in all universe . Since also dark energy is effecting then ,
DE = q.[E_m+ c̄.P_m] align with the field , so on DM dipole [E_m+ c̄.P_m] exist also a torque (τ) and in this way DE repels. Dark-energy [c̄.∇i] acting on the three constituents of DM = [(+c.s²) , (-c.s²) , (±c.s²)] separately and being also a non-uniform field ,then is not canceled but is a pushing force. ***DE is influencing as an expansion of the universe*** . Because DE is a stationary force on DM, so is exerting a strong gravitational pull on gravity field (participates in gravity). Action
[DE] © [DM] ≡ [c̄.∇i] © [DM] → [c̄.∇i].(+c.s²) , [c̄.∇i].(-c.s²) , [c̄.∇i].|(±c.s²)| = [c̄.∇i].[|+c.s²|↔|-c.s²|] , and Results ,

1.. DM →[|+c.s²|↔|-c.s²|] attracts and DE → [c̄.∇i] repels and not competing.

2.. DE is exerting a pull and a gravitational pull on all visible matter on the largest cosmic scale of the universe .

3.. DE by exerting pull on DM → [c̄.∇i].(+c.s²) and on [c̄.∇i].(-c.s²) *highlights* , and on → [c̄.∇i].[|+c.s²|↔|-c.s²|] the Darkness which is the tiny energy volume consisting the dipole of dark matter, *and formulates the massive Dark Fringes and this because are not particles*. [41]

4.. DM and DE are not visible because both travel with light velocity and so light is not interacting with them. Light , *which is a particle* , is interacting with the Rest Gravity field and all others with less velocity and so are detectable . Only velocities greater than that of light , *or a new simultaneity mechanism* , can make them visible . When Anti-matter annihilates with matter , gamma rays are produced because in Energy-space continuum remains only the energy while DE acting on DM fragments |+c.s²|,|-c.s²| formulates the massive compact spherical objects and the massive compact anti-spherical Anti-objects .

5.. Because of the DM and DE structure , which is breakages and force , collision of galaxies does not predict stars to be smashed into others. As above are created the , *gas clouds*, which are smashed into the other and get heated and so be a visible effect.

6.. Because light is a particle with velocity ,c, interacts with the REST gravity field by the Gravity force while DM ,DE having the same velocity have a parallel motion, *not parallel universes* , which cannot see it. DE has exactly the same effect as that of a very small constant vacuum energy MFMF field . Energy density of the Rest base MFMF is that of gravity ,I_g, while of the Moving DE,DM is that of , c .I_g , so in this way occurs expansion of the universe . GR being confined in Planck`s length Lp, could not see the whole Energy-space beyond this length and the way and how could expansion occurs.
Cosmological constant is the value of the energy density of the vacuum in the tiny space , without describing the how this tiny volume is expanded , so why to presume this as constant ?. The answer is that this was then introduced just to surpass the problem .[41]

7.. Because DM , DE consist a not homogeneous heap of mass distribution (anomalous mass) and permeate the whole universe is causing what is said , the expansion of the universe to accelerate without any Big-Bang explanation and any other mysteries force. The motion of this DM,DE , *mixture of the spherical opposite signed materials and dipole energy blobby volumes*, is not in contrary to gravity ,Fg , because both have already passed from the center of STPL contracted mechanism. Gravity field is the Rest base of all universe which doesn`t exist apriori but is the Base,*carpet*, on which , *the DE-DM heap mixture* ,with the same velocity ,c , is rolling , *expanding* , with the maximum constant velocity ,c, and continually formulating the , ***Zero → Number → Infinite Geometrical Universe*** .
Energy density of base.

8.. Black holes are gravitational wells ,*caves*, in EREBUS so any next constituent is dissipated or collapsed ,swallowed. Following above analysis it is a kind of mechanism which is source of energy and because of conservation of energy law , Black-holes , *the quasars* , exist in the centers of galaxies and are the beacons for astronomers and consist the recycled Space machines of the universe. DE,DM being also constituents are also recycled in Black-holes. The why are embedded in DM is a problem of stability and conservation of space and energy .Black-hole growth is connected with the constituents Energy-Space magnitudes so occurs , either massive galaxy merge or gas tiny merge.

The Articles binding Euclidean geometry and Mechanics without any assumptions and definitions clearly ***show that ,*** [41]

1).. The origin of Space [S] becomes ,through the Principle of Virtual Displacements W =$\int_A^B$ P. ds = 0 ,from Primary Point A which is the Space , to B which is the Anti-space as the Inner distance of Space and Anti-Space which equilibrium .

2).. The origin of Energy becomes , through the Principle of Virtual Displacements , as the Work of the Inner Impulse distance of Space and Anti-Space embedded in all points of universe.

3)..The *minimum Quantized Space ,Quanta* ,s², are in all quantized Spaces, i.e. Particles , [MFMF] Field , moving vectors, free velocity monads , Material lines → Surfaces and bodies .

4)..The *minimum Quantized Energy ,Quanta* ,2s², is diffused in all quantized spaces.

5)..The definition of Material Point as (±) Dipole Breakage in [MFMF] medium .

6).. The definition of Material Object as the Wavelength ,λ, of the (±) Dipole of [MFMF] Field which is a Standing Electromagnetic wave in beyond Planck`s cavity .

7).. The Time in Euclidean geometry is not distinguished, because time is a conversion factor existing only in its confined-Plank's length level because there exists motion- and is neither Space from Energy - because Energy exists as quanta on any first dimensional Unit AB with infinite or zero time - which connects the only two fundamental elements of Universe, that of Points and that of Energy.

8).. The [STPL] line-cylinder as the passage of particles from Absolute [S] Frame to all Relative [R] Frames is the Navel cord , the string of galaxies.

9).. The geometrical Reasoning of Planck Length Gravity`s length and all Spaces length .

10).Time is designated as the meter of changes , or as the conversion factor , between time (second) and space (mass) units and not essence of Space-energy Configuration . This age–old question ,*of what is time* ,was standing for many centuries in Philosophy , and was recently adapted by GR , by considering Time, as an essence of Space-time and accepting as base the wrong Non-Euclidean geometries.

11). Work as Energy is Quantized , converted , in Space monads , caves , $\bar{x}=d\bar{s}=\lambda m$, as pressure σ ,τ , the pressure is converted in caves as a Standing Electromagnetic Wave [E,P] which consists the Standing monad (Displacement current) and the moving Energy monad (by altering the inner wavelength λ or Period T of monad) in Gravity`s field medium [MFMF] and is dissipated as Quaternion monads (Particles or Waves , matter or vectors) as Forces (displacements , masses , pressure etc.) using modulus , coefficients , reactions to the motion and all other geometrical indices .

12). The Geometries related to the Euclidean by Lorentz factor ,γ, consist , *The Geometrical expression of Spaces and Anti-Spaces in Relative systems*.

13). The Cause and Events as it is the Energy quantization in caves λ and the velocity Breakages as , masses , and velocity ,$\bar{v}$, only is the Thrust of masses .

14). The Origin and the base of Gravity from [S] to [R] frame, and the Equations of the inner Electromagnetic wave.

15). The Structure of the Energy - Space Universe and the boundaries of the Space-time of General Relativity.

16). The Origin of Particles from velocity – The Thrust - on Breakages and the Breakages as the Fragments of the Space, Anti-Space collision , of a cave .

17). The Origin of Color - forces from the Retardation and the Birefringence of Spaces .

18). The Dual nature of Monads, of wavelength $|\lambda|$ as Particle , and Wave as the Stationary Electromagnetic Wave in $|\lambda|$, which is an intrinsic property of the Cycloid motion of velocity ,$\bar{c}$, and Spin , forming the plane and spherical standing waves which are < The Inner structure of Particles > .

19).The Cycloidal motion as the intrinsic property of vectors which is a Stationary wave on wavelength of vector, where < Poinsot`s ellipsoid > becomes → cycloid Ellipsoid ,

20).The mechanical relation between the speed of light and principal stresses , guided to , Permittivity , Permeability, in free space medium .

21). Michelson`s-Morley experiments cannot prove reality because in Planck`s cave occurs isochrones motions ,and Gravity is the force (*energy*) which is connecting the Material points of the Medium with the constant light velocity $\bar{c}$. The Relative motion of moving systems through Stationary system can be detected only by the Tangential velocities $\bar{v} = \bar{w}.r$ on circumference of a cave ,r, with radius R > r .

22). The equations of inner Structure of Gravity field and the stability of the whirling Space , Anti-space , the Spin , are extended to monads.

23). The immense confusion in the basic ideas regarding the Quantized Energy-Space , *The Quanta*, → vanishes.

24). Manifold of mathematics from Astrophysics to Quantum mechanics have been progressively developed on Non-Euclid Geometries, resulting to Relativity`s Space-time confinement, unable to conceive the under Planck`s cavity energy existence .The only two fundamental elements of Universe, is that of Space (*points*) and that of Energy (*motion*) and is the only way to explain Reality.

The New Creation Hypothesis is Summarized as follows F-2 :

a. From Nothing (*i.e. the Point*) to Existence (*i.e. to another Spherical Point*) issues the zero Virtual work law, which zero Work is the equilibrium of two equal and opposite forces on points . Thus Space is *the Point* and Anti-space is the *Other Point* . Infinite points are between , *the Point* and *Other Point*, and between the Infinite points also which consist the Primary Neutral Space and equilibrium by the two equal and opposite forces on points.

b. Work as , *Opposite forces* , exist on the infinite points between , *the Point ,* and , *the Other Point* , which Opposite forces with different lever-arms exert the equal and opposite Momentums which equilibrium ,*because Work is zero*.

c. Opposite Momentums are only in the Rest curl Energy volumes differently would not be rest .This inverse vortical motion results to velocity vectors collision which are so crushed into fragments , and after clashed with the velocity vectors $\bar{v},\bar{c}$ are thrown OFF ,*the curl Ellipsoid energy volume (the Absolute System)* ,and through an Anti-diffused geometrical mechanism , again in a new energy volume (*the Relative System are the parallel Inertial systems*).

d. This Anti-diffused mechanism drives all clashed fragments **either** through the , *Centre of Common circle curl Ellipsoid forming the Rest Gravity Field-energy and the Movable Dark Matter-energy*, **or** through the Tangents on *Circumference of Common circle curl Ellipsoid and forming the Movable Particles–Antiparticles-Bosons,* **to** an Simultaneity Relative cylindrical system volume.

e. In this cylindrical volume , which are the parallel inertial systems , **is the Rest** Gravity Field -energy as the Base carpet, for **The Movable Dark** Matter-energy and for all Formation in *Rest or Movable ,by Pulling and Repelling and also all* moving Particles–Antiparticles and Bosons, on where are applied laws of Chemistry and Physics.

Mechanically: The principle of Virtual Work is the motion of a force ,P, executed on a point A to reach point B, so force acting on point A (*which is Nothing*) reaches point B (*which is also Nothing*) , i.e. stability of the system A-B is obtained by the equal and opposite forces acting on points A , B . On the infinite points between the two infinite and opposite forces are also acting on them resulting to a , *Whirling on a line* , perpendicular to A-B axis. Because of unbalance of Whirling ,*it is a common source of vibration excitation*, the Rotating unbalanced, where is represented by an angular velocity ,w. The rest system of this opposite Whirling Energy , *vortices* , exists in the vibrating Ellipsoid volume which is a geometrical cave . This inverse vortical motion (w ,- w) , in cave results to velocity vectors collision which are crushed into fragments, and after clashed with the velocity vectors are thrown OFF this ,*curl Ellipsoid energy volume (the Absolute System)* , through an Anti-diffused geometrical mechanism to a new energy volume *(the rest Relative System)*.

Fragments through ,**The Centre** (where v=0) *of the Common circle Ellipsoid* , **form** *The Rest Gravity Field-energy* and the *Movable Dark Matter-energy* , and through **The Tangent** (where v=v) on the *Circumference of the curl Ellipsoid circle* , **form** *the Movable Particles–Antiparticles-Bosons,* to an Simultaneity Relative cylindrical volume. All movable elements are formulated , *by Pulling and Repelling,* i.e. all moving Particles–Antiparticles and Bosons and all their producing`s on where laws of Chemistry and Physics are applied .

Philosophically :

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