The Origination - Mechanism of the Fundamental - Particles into the Planck's - Confinement

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ABSTRACT

The Interactions: One of the most important concepts in Geometry is, *distance,* which is the Quanta in E-geometry, while in Material-Geometry the composition of Opposite, where the *Material -Point* is the Quanta in Chemistry and Physics. *As in Algebra* Zero,0, is the *Master-key* number for all Positive and Negative numbers and this because their sum and multiplication becomes zero, *and the same* on any coordinate-System where ± axes pass from zero, *The* Rolling of the Positive $\oplus$ constituent on the Negative $\ominus$ constituent, creates the Neutral Material Point which Equilibrium. Angular-Momentum is identical with *Spin* and consists the *First-Discrete-Energy-Monad* which occupies, *Discrete Value and Direction*, in contradiction to the Point which is Nothing, *Dimensionless* and *without any Direction. Quaternion* [(+) ↺↺ (-)] ≡ Box $B_{R=AB}$ which carries the Principal stress σ between Points A (+), B (-) which σ, as *Centripetal-acceleration* is the minimum Energy becoming from the in-storage AB acceleration and is equal to the *Gravity Force* g. Because of the *Revolving and Periodic* acceleration of Gravity $g \equiv \pm σ$ exists as the First Energy-Box- B_R , while in the Second Box B_P is followed *the Local-Extreme-case* where Gravity $g \equiv \pm σ$, and is altered Locally by changing the Principal-stress σ with a Local-uniform-Pressure $\to g_L \equiv g\ k = g$. [Force/Area] = G, i.e. The minimum Local - Energy acceleration is the known, *Universal Gravitational-constant* $G = g\ k = k_E\ g = k_L\ σ$, such for *Macrocosm and for Microcosm*, Obeying the Newton`s Laws of motion. This Energy in Hydrogen-Cave as E-M, Conductor ≡ The Pin of Atom → Plug Into their Sockets, which are the Orbit – Bracket–Hooks ≡ The Hands of Atoms ← i.e. The Atoms Plug with their Pins into the other Atoms-Drains = Holes, and so Bond. This Resonance frequency of *Hydrogen is Common to all Atoms* and to all Compounds in this Cosmos. The Energy-Quaternion $\overline{w}$, $\overline{B}$, Monad-Magnitudes exist as DUAL -Nature for Any {$\oplus$, $\ominus$}, {Position, Motion}, {Universe, Black-Holes}, {Gravity, Antigravity}, {Action →. ← Reaction}, The Light and others. The STPL- Line Conductors on the [STPL]-Mechanism, are the Physical-Rotors for the Origination of the Cosmic –Particles which transfer Informations as the Signals-Spectrum. From Mechanics-Physics, *all Systems Possessing Elasticity ≡ motion and Reaction to the motion,* the called mass, *are capable of free vibration or vibration* ≡ Periodic - motion *taking Place in the Absence of External Excitation*. This Principle issues for Both Systems Closed {The Nucleus} or Open Systems {The Orbitals}. For instance, In order that shifting of an u-d-Quarks from an Anti-Proton into a Proton, the Spin-Pair requires extra input of Energy in (MeV), so that would the Proton Paired with a Neutron and be Stable.

Keywords: The Universe, The Elementary Particles, The Black-Holes

THE STRUCTURE OF THE EUCLIDEAN GEOMETRY. [6 -12]

a1. Point is nothing, has not any Position and Dimension, and may be anywhere in the known Space *therefore*, the Primary point A, *being nothing also in no Space,* it is the Only - Point and no-where (*i.e. Primary Point is the Only Space and from this all the others*). [6]

a2. Straight line is 0, Positive, Negative, consisted of ± ∞ Points which are nothing, and since it is composed of infinite Points which are filling the line, *then nature of line is that of Point i.e. (the all is one for Lines and for Points).*

a3. Plane is Positive, Negative, ± Neutral lines and since Points are Imaginary lines it is composed of infinite Straight lines which are filling Plane, so then, *nature of Plane is that of Line and that of Points (i.e. the all is one for Planes, Lines and Points).*

a4. *Space* is + Positive, - Negative, ± Neutral Planes and since Points are Imaginary Planes it is composed of infinite Planes which are filling Space, so then, *nature of Space is that of Plane and that of Points (i.e. the all is one for Spaces, Planes, Lines and Points).*

2a. The Fundamental Principles of E-Geometry

2a1. The first dimensional Unit AB is of two Points A, B not coinciding which is the geometrical Shape that has as Position the Point of direction $\overrightarrow{AB}$, $\overleftarrow{BA}$, and as Magnitude (the length |AB| = 0 → N → ∞). |AB| is a straight line through Points A, B. (F.1b), [6]

$$CA + CB \overset{\downarrow}{=} AB \quad , \text{ where ,}$$

F.1(a)   F.1(b)
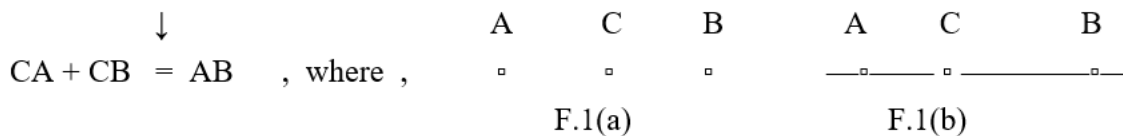
- ds = An Infinitely small increment of length AB in the direction $\overrightarrow{AB}$ or $\overleftarrow{BA}$.
- ∞ = An Infinitely great magnitude |AB| in the directions $\overrightarrow{AB}$, $\overleftarrow{BA}$). Any Point
- C is on Straight line AB, only when exists the equation CA + CB = AB, i.e.

The Whole AB is equal to the Parts CA and CB. (*as equation* F 1.b).

In case that CA + CB > AB then Point C is not on line AB, and this is the main difference between Euclidean and Non-Euclidean geometries. In Definition 2 (*a line AB is breathless length*) is altered as *for any Point C on line AB exists* CA + CB =AB.

Edge Points A, B not coinciding on Monad AB, keep the properties of Complex numbers with Imaginary Part which differs between the infinite Point [11] – [13]

Unit AB creates Spaces with two basic Elements, The Position (which are the three directions $\overrightarrow{AB}$, $\overleftarrow{BA}$, $\overleftrightarrow{AB}$) and the Dimension (which is the Magnitude N such that
- N = 0 → |AB| → ∞), and when exists,
- A = B = The *Principle of the Equality.*
- A ≠ B = The *Principle of the Inequality.*
- A→↔← B = ∞ The *Principle of Virtual Displacements.* W = ∫ P.ds = 0, ds = ∂W / ∂P
- $\overrightarrow{PA}$ + $\overrightarrow{PB}$ = 0 The *Principle of Stability*

- $\overrightarrow{PA} + \overleftarrow{PB}$ > < 0 The *Principle of Motion.*

2a2. The Monads = Quantum = $\overrightarrow{ds}$ = AB / (n = ∞ → 0) = [a ± b i] = 0 → ∞, are simultaneously (*Actual Infinity*) and also (*Potential Infinity*) in Complex number form and this defines, infinity which exists between all Points which are not coinciding and where (ds > 0), and because ds comprises any two edge Points with Imaginary part then this property differs between the infinite Points. The Plank length is a Monad ds = 1,62 x 10^{-35}, for the two Points A, B, and for the moment is accepted as the smallest possible size. Monad is also infinitely divided because edge Points A, B are not coinciding i.e.... ds = $1x10^{-N} < ∞$, where N is any number.

1. Spaces of Unit-AB are (in Plane) the Infinite (+) Circumscribed-Regular-Polygons on the circles *with AB as Side* (repetition of Unit AB) the Nth Space, the Nth Unit Tensor of the N equal finite Elements ds, and for the ∞ Spaces, the line AB ↔. (Fig-1) The diameter of this circles extends to infinity (*it is of Potential nature)*. [11]

2. Anti - Spaces of Unit AB are (in the three dimensional Space) the Symmetrically Infinite (-) Circumscribed- Regular-Polygons on the circles or (a Solid in Cube in Sphere *with AB as side* of the Solid). The Harmonic Repetition of Unit BA, symmetrical to AB) is the Nth Anti-Space, the Nth Unit Tensor of the N equal finite Anti - Elements, and for the ∞ Spaces, the Sphere through line BA. The diameter of this Spheres extends to the infinity (*it is of Potential nature)*. [11]

3. Sub- Spaces of Unit AB are (in Plane) the Infinite Inscribed-Regular-Polygons in the circle *with AB as diameter* (are the Harmonic Repetition of the Roots in Unit AB) and in Nth Sub-Space, the Nth Unit Tensor of the N finite Roots and in case of the ∞ Elements are the Points on the circle, *and for 3D-Space, the Points on Sphere* AB). The Superposition of Spaces, Anti-Spaces and Sub-Space Layers of Unit AB is shown in Figure.

   Remark: (+) Spaces, (-) Anti -Spaces, (±) Sub-Spaces, of a Unit AB are between magnitude (Point = 0 = Nothing) and the Infinite magnitude (↔ = AB = ± ∞ = Infinite) which means that All Spaces exist in One Space only. Because in Spaces and Anti-Spaces, the ∞ Spaces of Unit AB is Sector AB ↔, and in Sub-Spaces the ∞ Sub-Spaces of Unit AB are the Points on the circle with AB as diameter, then this ordered continuum *for Points on the circle* of Unit AB and on *line AB* shows the correlation of Spaces in Unit AB. i.e. Monads ds = 0 → ∞ are Simultaneously, *Actual Infinity (because for n = ∞ then ds = [AB / n = ∞] = 0, or A Point) and, Potential Infinity, (because for n = 0 then ds = [AB / n = 0] = ∞ is the straight line through AB. Infinity exists between all Points which are not coinciding, and because Monads* ds *comprises any two Edge-Points with Imaginary Part, then this Property is the difference between the infinite Points*. [11]

4. Neutral-Spaces of Unit-AB are (in Plane) the Infinite Circles *with AB as diameter* (the Harmonic Repetition of the Roots in Unit - AB) and in Nth Sub-Space, the Nth Unit Tensor of the N finite Roots, and in case of the ∞ Elements are the Points on the circle, *and for the 3D-Space, the Points on the Unit - Sphere* AB). *Since Spaces, Anti – Spaces and Sub-Spaces are created from Unit AB, and are Property of this Unit only, therefore these are a Restrained System (S)* Presupposition for Unit |AB| = ds (displacement ds) is Point A to move at the New Position B (A ≡ B) which means *an IMPULSE (P) transfers Point A to B.* Since in each Restrained System (S) the Work done (W) by Impulse (P) on a Virtual displacement (ds > 0) is zero, or W = $\int_A^B Pds$ = 0 Therefore, Each Unit |AB| = |ds| > 0

exists, by this Inner Impulse (P) which means that, *The Position and Dimension of all Points which are connected across the Universe and that of Spaces, exist because of this Static Inner Impulse* P *between* A and B, on the contrary, *should be one Point only* (Primary-Point = Black-Hole → ds = 0 → P = ∞) *Impulse* P *= ∞, and may be Vacuum, Momentum or Potential or Induced Potential and it is a Type of Effect of Push nature.*

2a3. The Superposition of Plane Space, Anti-Space Layers and Sub-Space Layers

The simultaneously co-existence of Spaces, Anti-Spaces and Sub-Spaces of any Unit |AB|, Unit AB = 0 → ∞, (A ≡ B) i.e., Euclidean, Elliptic, Spherical, Parabolic, Hyperbolic, Geodesics, Metric and Non-metric geometries, exist in Euclidean Model as an Sub-case within. The Interconnection of Homogeneous and Heterogeneous bounded Spaces Anti-Spaces and Subspaces of the Universe. The Unity of Opposites is also the *Quantized* Property of Euclidean geometry < *all is one* > as it is Discrete (for Monads AB) and Continuous (for Points A, B). For Primary Point A it is the only Space [17]

d-1. **The Unique Case** *where P = 0 and Δs > 0 = AB → ∞ is the Primary Neutral Space* [PNS]

The Spherical connection of the same Points in PNS, is related on the influence ($P = 0 \rightarrow \overrightarrow{AB} \rightarrow \infty$) *of the infinite (∞) Equilibrium Primary-Spaces and Anti-Spaces.* For every Point in [PNS] exist the three Spatial dimensions (x, y, z) and the infinite dimensions of the (i) Layers at this Point existing from the other Layers (at small scale using coordinate system) of Primary Anti-Space and Sub-Space where i = 1 → ∞. It has been also shown that, Every Point M of Primary Neutral Space [PNS] exists in this Space with a deficit of Impulse P = 0 → ∞, due to the influence of the other Equilibrium Primary Spaces.
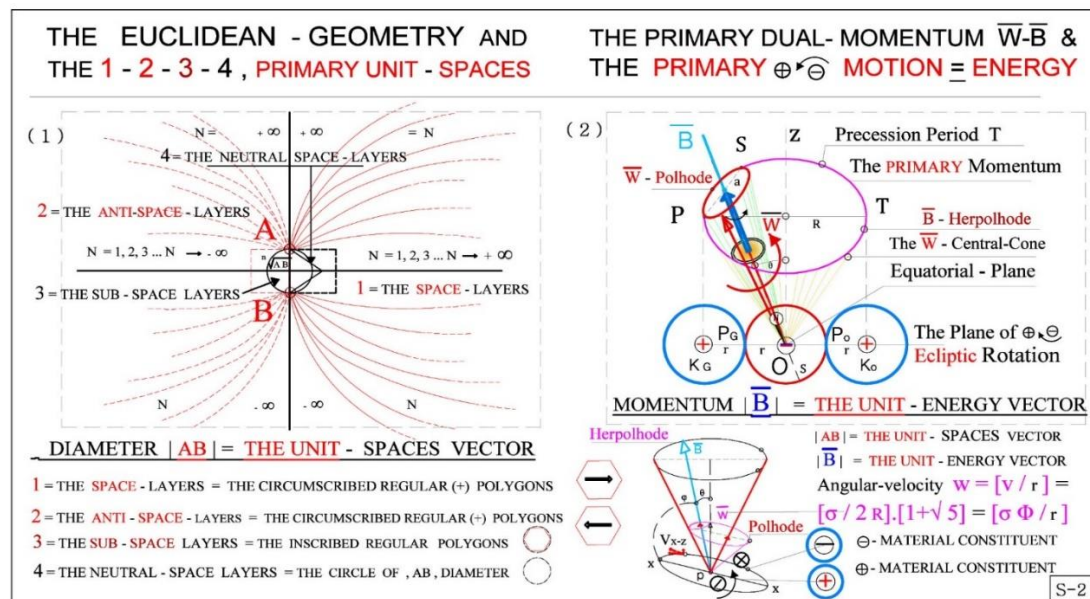

Figure 1: The 4-Primary-Spaces of Euclidean-Geometry and the Primary Rotational Quantized motion ≡ The Unit-Angular-Momentum-Energy in PNS Spaces.

This Property of Points in Neutral Space *is the cause of their Continuously Survive.* The Quantization of Points *becomes through Vector Unit* dš = |AB|, and for Energy *is done in bound*

States (loops) which *withhold the diffusion (flow).* The two fundamental dimensions (*Quanta of Points (ds) and Quanta of Energy (d P), are connected on*| AB|, *So at any Point M exist the Impulses of all the other Spaces. All Points of* [PNS] *are* Homogenous (*i.e. all Points of* PNS *Space are Equivalent* ≡) and Isotropic (*i.e. all directions,* ⇒, *of* AB *are Equivalent)* → [A ≡ A], For the Primary dipole and for Any dipole Ai-Bi issues, The Position of Dipole in the equilibrium Space Anti-Space creates *charge = momentum* and *Angular momentum* (Spin = *the intrinsic twist of Space, Anti-Space)* which inextricably unify Geometry of Space and motion. [10]

3a. The Quantization of the → {Energy – Space Universe} ←

In a Conservative System the Total Energy ≡ Motion is constant and the Differential equation of motion can be established by the Principle of Conservation of Energy. For the free vibration of an Undamped System, the Energy is Party Kinetic = E_K which is stored in the mass by virtue of its velocity and Party Potential = E_P which is stored in the form of Strain energy in elastic deformation, or the Work done in a Forced-Field such as gravity. Since Issues $E_K = E_P$ so and $E_K + E_P$ = constant. From the theory of Vibrations, {All Systems possessing mass= m and Elasticity = E = 1 / k are capable of free vibration in the absence of external excitation which is its Natural frequency of vibration = w_n and the equation of motion is → $\ddot{x} + w^2_n x = 0$ ←where $w^2_n = \frac{k}{m}$, Gravitational force G = m g} i.e. Since the Hydrogen-cave System H, as E-M Conductor, Possesses mass m_H, and light-velocity c, then vibrates IN – OUT the Space-Positions (x, y, z) of all Universe with its Natural frequency $w_H = \sqrt{\frac{k}{m_H}}$. or and frequency $f_H = \frac{w_H}{2\pi}$, and is a Wave – function providing the complete Description of the Physical Reality. From, Work = W = Force - $F_{i,j,k}$ x Displacement $ds_{i,j,k} = (F_{i,j,k} \times ds_{i,j,k}) = $ (F x ds), and for the Unit of time dt, → W / dt = F x (ds / dt) = (F x $\overleftrightarrow{v}$ i, j, k) = Power = P. i.e. Power ≡ Force x Velocity or (P = F x $\overleftrightarrow{V}$)

Remarks, from Mechanics - Physics

1. Energy E = $\frac{1}{2}$ m $_H$. c ^{2}, or → 2E = m $_H$. c ^{2} ← and Velocity = The light-velocity c,
2. Wave length $\lambda_H = \frac{2\pi c}{w_H}$, and Wave Amplitude $A_H = \frac{\lambda_H}{2\pi}$,
3. Hydrogen Power P_H = 0,5. m $_H$. [A $_H$] ^{2}. [c] ^{2}
4. The Hydrogen Stress-Vector σ $_H$ is related to c as, c = Φ. σ $_H$
5. Since Hydrogen cave is an E-M Conductor then it is a Wave with Natural frequency, and since occupies the Property of →Atoms-Plug ≡ Pin and Atoms-Drain = Hole so are Bonded ← in a multi-DOF System at the Stationary Conditions.
6. To find the Eigenvalues and Eigenvectors of a multi-DOF System, Iteration method of motion is formulated by either the Flexibility Matrix [a] or the Stiffness Matrix.
7. Momentum ≡ ± SPIN ≡ [Gravity and Antigravity] *because* the light velocity $\bar{c} = [\frac{G\,\Phi}{A}]$, and Precedes that of A-Momentum ⇒ $\bar{B}$ = r m $\bar{c}$. Exists Vector B ⊥ r-c Plane.
8. Since Angular-velocity $|\bar{w}|$, *a vector*, Rotates in one axis k with respect to one variable only and this happens IN {PNS-Space, Atoms-Space, Objective-Reality and in Universe} then Quaternion - Momentum, $\bar{B}$ & $\bar{w}$, and W ≡ Motion are Stabilized in the DUAL –TYPE, such in Microcosm, as in Macrocosm, or Both as Omnipresent.
    (a) The DUAL-Momentum $\bar{B}$ & $\bar{w}$, as Real ≡ Existing-Universe, Imaginary≡ Black-Holes

(b) The DUAL - Photon, as Real $\equiv$ Space $\equiv$ Particle and, Imaginary $\equiv$ {E $\Rightarrow$ M - Wave}.

(c) The DUAL - Spin $\overline{B}$, as Real $\equiv$ Space $\equiv$ Gravity and, Imaginary $\equiv$ {Anti - Gravity}.

(d) The DUAL – Matter $\overline{B}$, as Real $\equiv$ Space $\equiv$ Atoms and, Imaginary $\equiv$ {E $\Rightarrow$ M -Wave}.

(e) The DUAL-Refraction of Energy as Real $\equiv$ The Space angle φ, Imaginary $\equiv \overline{v}_1$, $\overline{v}_2$ {The Energy $\equiv$ W from the different velocities, $\overline{v}_1, \overline{v}_2$}.

The Results in Hydrogen - Cave

1. Hydrogen-Cave, IN – OUT Universe occupies mass m_H, velocity $\overleftrightarrow{c}$, and Power P_H

2. Electron in Hydrogen-cave Precesses and Nutates due to the Gravitational constant G. The produced Work is stored in form of→ Stress Energy as Hydrogen-Bracket-Hook← The Electron Precesses from the continuous and immense-communication to gravity, g. Electron-Spin is the Angular-momentum-vector $\overline{B}$ and rotates according to equation $\frac{dB}{dt}$

3. The Stationary → Tetrahedron, In-Sphere, Cube, Ex-Sphere ←construction of Atoms Permits the Space – coordinate - Structure of Atoms, The Wave-eigenfunctions of many non-commuting Physical operators as Momentum Power, from the Quantum-Mechanical description of the Physical-Reality is Complete i.e. IF-known the Physical Operators, their coordinates are simultaneous Physical reality.

4. The Interactions of Two or more Systems with known Status can be calculated any time by the Bioelectronic-Spectrum of → {Carrier-Modulating-Modulated, Demodulation Process Mechanism} ← using Markos Program < Programming Atoms-Bonding and Their Compounds > SO, Energy $\equiv$ motion is of Wave nature which enters the Energy caves and becomes a Particle or Wave or Both. In case of Photons exists this DUAL-Property, Wave – Particle. Thus, The Historical Doubt of Einstein - Podolsky - Rosen for the Q-Mechanics Completion VANISHES. [100,104].

5. The Programming of Atoms Bonding is the Quantization of *Atoms -Wave -Energy* to all Possible Equilibrium Positions of the [$\oplus\leftrightarrow\ominus$] constitutes Reactions. The Wave-Energy as Vibration travels at 75-90 % of the light speed c, while the Wave-Energy in Black Holes is n π c times of the light speed. [100-101]

6. From all the Possible Reactions in Compounds, the Bonding or the Releasing of energy is the Vital rule of the Theory of Vibrations. The Program Programming the Atoms and their Compounds, analyses the Interactions of two or more Energy Systems with known Status using the → Carrier–Modulating–Modulated–Demodulation Waves Process ←

Some following Wave`s Properties that are Defined

- 6a... The Equilibrium Mode – Shapes, Φ, Diagrams.
- 6b1..The Circular – Frequencies, W_R, in 10^{15} Hz,
- 6b2..The Natural – Frequencies, f_R, in 10^{15} Hz,
- 6c.. The Resultant Energy – State, E_R, in e-Volt,
- 6d...The Electric–Magnetic Field, E_R - M_R, in 10^{-12} Ampere -10^{-6} Tesla,
- 6e.. The Intensity of the λ-Electric–Field, I_λ, in 10^{-12} Ampere,
- 6f.. The Intensity of Magnetic–Field, M_λ, in 10^{-6} Tesla,
- 6g.. The Wavelength, λ, in.10^{-10} meters,
- 6h.. The Wave Velocity, $\overline{v}$, in 10^5 meters / s,
- 6i1..The Resultant Voltage at Wavelength-sides, V_λ, in Volt,
- 6i2..The S-Bands Voltages at Wavelength-sides, V_λ, in Volt,
- 6j.. The Radius of the Helical motion, r = A_R in.10^{-10} meter,

- 6k.. The Total Carrier Power, P_{CT}, in 10^{-20} Watt,
- 6l.. The Total Side-Bands Power, P_T, in 10^{-20} Watt,
- 6m.. The Side-Bands Amplitude, A_B, in 10^{-10} meter,
- 6n.. The Side-Bands Coefficients, a - m, in n-n,
- 6o.. The Modulating Phase Shift, φ, in Rad /2π,
- 6p.. The Modulating Factor, m, in n-n,
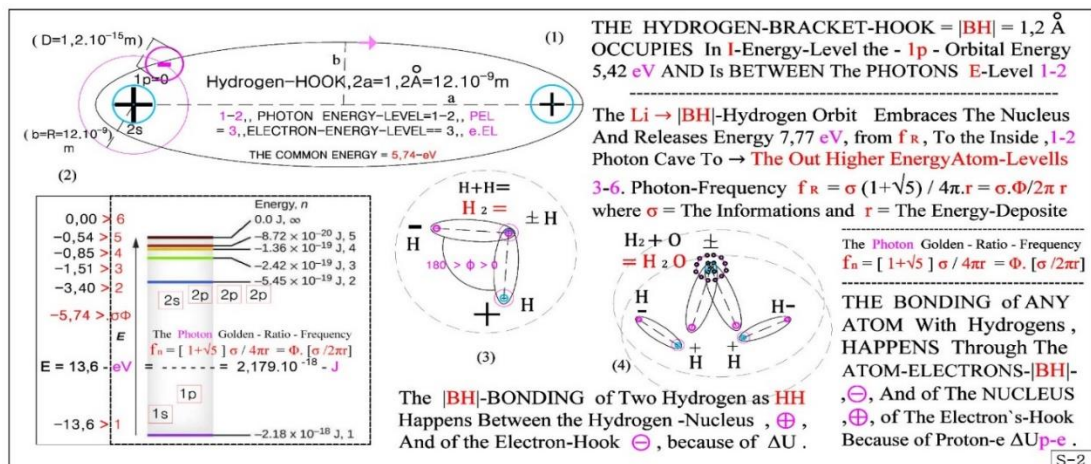- 6q.. The Total Energy-Status, a - m, in H-W,

Figure 2: The $\pm$ Energy in Hydrogen and Atoms exists from Hydrogen Common-Atom. The two Hydrogen Bonding → H + H = H_1^1 + H_1^1 = H_1^{1-1} H_{1-1}^1 = H_1^0 + H_0^1 = H_2 Water H_2O = O_1 H_2= O_2^2 H_2^2 = T $\frac{4}{4}$ = $O_2^{2-2}H_{2-2}^2$ = O_2^0 H_0^2 = ES $\frac{2=T/2}{2=T/2}$, Still. [102]

4a. The Corelations of Spaces and the Primary Motion

Euclidean Geometry Spaces occupy Position (x, y, z) and Dimension $|↕|$ at any Point P, Cauchy Stress Tensor defines the State of Stress (σ, τ) to the Traction-Vector (T^e= e. σ). The Position of Spaces is defined from any 3-dimension Coordinate (x, y, z) or from Angular-System (φ, θ, ω) or any other System with axis from any fixed Point O.

The Dimension of Spaces is defined as the distance between any two Points O, P, and from any fixed Point O is the magnitude $|OP|$ = $\overleftrightarrow{n}$ $|OP|$, where $\overleftrightarrow{n}$ is The Unit Line - length direction and is identified by vector $\overleftrightarrow{n}$ ≡ $|AB|$ = The Unity Monad.

In Fig-1-1, On AB Diameter = 2R = The Monad of Neutral-circle exist the Spaces with their Sides λ_n= 2,$\sqrt{R^2 - a^2_n}$, and their Critical-sides a_n = $\frac{1}{2}\sqrt{4R^2 - \lambda^2_n}$, as below

1. For Spaces, the Polygon Side is $\lambda_{n(S)}$ = 2.$\sqrt{R^2 - a^2_{n(S)}}$,

2. For Anti-Spaces, the Polygon Side is $\lambda_{n(AS)}$ = 2.$\sqrt{R^2 - a^2_{n(AS)}}$,

3. For Sub-Spaces, the Polygon Side is $\lambda_{n(SS)}$ = 2.$\sqrt{R^2 - a^2_{n(SS)}}$,

4. For Neutral - Spaces, the Polygon Side is $\lambda_{n(NS)}$ = 0, while in Material-Geometry becomes from the Centripetal Force F_C = σ = $\frac{m.v^3}{r}$ = J w^2 r, where the Unity Monad r ≡ monad R =

$\frac{\sigma}{J.w^2} = \frac{\sigma}{\overline{B}} = \frac{Stress}{Angular-momentum}$, and Polygon Side $\lambda_{n(NS)} = 2\sqrt{R^2 - a^2_n}$, All becoming from Pythagorean relation $[R]^2 = [a_n]^2 + [\frac{\lambda_n}{2}]^2$. i.e. The Primary Space is Originated from the Stress $\Rightarrow \sigma$, and from the Angular Momentum $\Rightarrow \overline{w}, \overline{B}$, Produced from the Two - Opposite $[\oplus \leftrightarrow \ominus]$ constitutes.

5a. The Origination of Primary Motion in E - Spaces

The Stress - State (σ, τ) in Spaces is defined from the Cauchy Stress Tensor where, Exists at any Point inside a material in the deformed State Placement or Configuration. The second order Tensor consists of nine components and relates a unit length direction vector $\vec{n}$ to the Traction-Vector $T^{\vec{n}}$ across an Imaginary Surface (in M-Geometry is Φ) Perpendicular to $\vec{n}$, $T^{\vec{n}} = \vec{n} \, \sigma$, or $T_j^{\vec{n}} = \sum \sigma_{ij} \, n_i$, obeying to the Tensor transformation law for Stress Analysis. A contact Force ΔF exerted at Point P of element area ΔA, the ratio $\Delta F/\Delta A$ becomes dF/dA and the couple stress vector ΔM vanishes and prior tensor becomes $T_j^{\vec{n}} = \lim_{\Delta S = 0} \Delta Fi/\Delta S = \frac{dFi}{dS}$. Equation means that the Stress-Tensor depends on the Position (location) in Body and the orientation of the Plane on which it is acting. From Spaces (4) in Material-Geometry of PNS -Space (Fig-1-2) the eternal Rotation of the two Opposite $[\oplus \cup \cup \ominus]$ constitutes, and because of their in between Stress σ which is equal to the Centripetal-Force then issues $F_C = \sigma = \frac{m.v^3}{r} = J \, w^2 \, r = \overline{B} \, r$, where the monad $r \equiv$ monad $R = \frac{\sigma}{J.w^2} = \frac{\sigma}{\overline{B}}$ i.e. The Stress σ, which is created between the Opposite $[\oplus \leftrightarrow \ominus]$, and through the only Possible Rotational-motion, Originates the Angular-velocity $\breve{w} = \frac{\sigma.\Phi}{r} = 2\pi r.f$ and the Angular Momentum $\overline{B} = \frac{\sigma.}{r} = \frac{\sigma.}{R}$, which when Placed on AB Diameter = 2R = The Monad consist the Neutral – Spaces - Energy. The Planck`s cave, $10^{-35}$ m, is The Safety-Valve $\equiv$ The Critical State for the Stress Ellipsoids, $\overline{B} \, \overline{w}$, Vectors in order that this Total-Energy to Superflow and be Still into Vacuum $\equiv [10^{-62}\text{-}10^{-35}m]$. This Vacuum between the |Gravity cave - Planck`s cave| CONSISTS The BLACK - HOLES - CHAOS, as the Recycling–Energy into which $\rightarrow$ The {Energy – Space - Monad $|\overline{R}| \equiv |AB|$}, Decomposes $\leftarrow$ {Fig-14}

The Rolling of Polhode Unit-Space into the Herpolhode Space-monad Cone
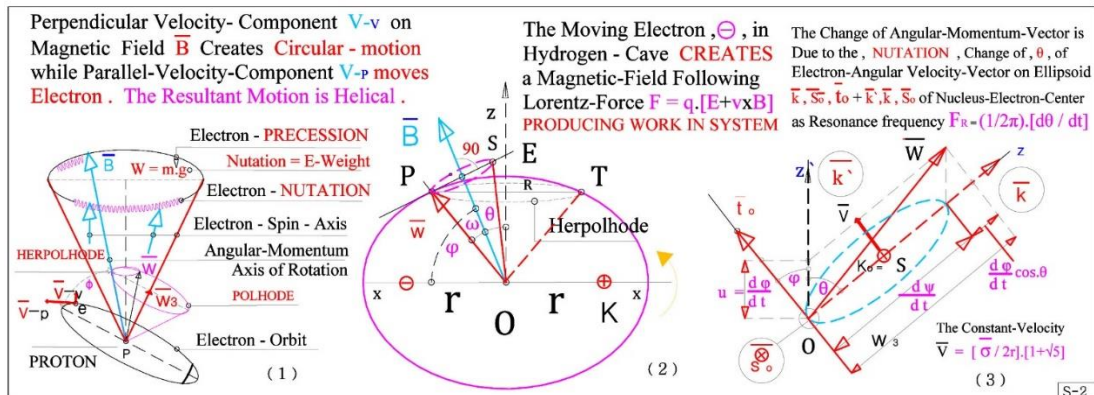

Figure 3: The Central Axial-Ellipsoid of $\oplus$ constituent Rotating through constant Point O.

In (1-2) *The $\oplus$ Material Point* OK, {$\oplus \equiv$ O, [OK = R] $\equiv$ The Space}, continually Rotates around *The $\ominus$ Material Point* OK, {$\ominus \equiv$ O, [OK] $\equiv$ The Anti-Space}, on 2R circle. The center of their

Common circle forms the material angle $\varphi = \varphi_P.t = (\frac{v_P}{\sqrt{c^2-r^2}}).t$, CREATES at any contact Point P the Centripetal Force $F_C = \frac{mv^2}{r} = \frac{\pi r^2}{2r}[w^2. r^2] = \frac{\pi.r^3}{2}[w^2]$.

The vector $\breve{w}$ of Angular velocity w, formulates the Polhode Cone of Base-radius a, and of OP = S side forming the w-angle with z axis, while the vector $\breve{B}$ of Angular Momentum B, formulates the Herpolhode Cone of Base-radius r, of OP = S side and θ-angle with z axis. In (3), is the MPMP Space where Time is not existing t = 0, and the same for motion also. In PNS-Space the 3-dimension motion of the Primary constituents [⊕↺↻⊖] the time is as Period T, and Momentum is the Angular-velocity $\breve{w}$ and Angular Momentum $\overline{B}$, where the Momentum $\overline{B}$ = r m v = m $\breve{w}$ r^2 = ± $[\frac{\pi.r^2}{2}].\overline{c} \times \overline{r}$ and ± $[\frac{\pi.r^2}{2}]$ ≡ the Hemi - circle area. The Polhode is of radius a, and rotates with an angular velocity $\breve{w} = 2\pi.f_P$ in the Cone πa^2.s. The Herpolhode is of radius r, and is the Stationary Cone πr^2.s. with an angular Momentum $\breve{B}$ = r m v = r m (w r) = m $\breve{w}$ r^2. The Polhode Cone is rolling on OP and contact common line, into the Herpolhode Cone without friction. i.e. The motion *in PNS-Space exists as the Rotation of Space Point* P (+) *on* [O,OK] *circle* Anti-Point P ` (-) *on* [O,OK] *of Anti-circle and defines The Angular-momentum* $\overline{B}$, *so* The Position *of Spaces* Points P (+) and Points P (-) *and Momentum are simultaneously* Determined *and measured,* consisting a direct violation of the Uncertainty Principle.

The Primary - Rigid -Body Analysis

(a) The Position of the Herpolhode Cone is, Fig-3. x = a.sin θ. cos wt, y = a.sin θ. sin wt, z = a - a.cos θ = a.[1 - cos θ] where exists, a = The Polhode Cone Base-radius, r = The Herpolhode Cone Base-radius [x, y. z] = Coordinate System such that z-axis ⊥ [KOK] line, and angle - θ between OP, Oz Axis.

(b) The Energies of the Polhode - Herpolhode Cones are from Lagrange`s Principle where for any Particle, The Kinetic E_K and Potential E_U Energy are measured as below,

$E_K = \frac{1}{2}$ m. $[\dot{x}^2 + \dot{y}^2 + \dot{z}^2] = \frac{1}{2}$ m a^2. $[\dot{\theta}^2 + w^2.\sin^2 \theta]$, and E_U = m g z = - m g a.cos θ. The Lagrangian L_{KU} = m.a^2.$[\frac{\dot{\theta}^2}{2}$ - $V_{EFFECTIVE}]$, where the Effective Potential V_{EFFE} is V_{EFFE} = - $\frac{1}{m,a^2}$ [m g a.cos θ + $\frac{1}{2}$ m a^2.w^2.$\sin^2 \theta]$ = - $[\frac{g.\cos \theta}{a} + \frac{w^2.\sin^2 \theta}{a}]$ .....(e), The equation of motion for th Bead becomes from Lagrangian which is $\ddot{\theta}$ = $[\frac{\partial V_{EFFE}}{\partial \theta}]$...(b), Since θ is constant then issues $\dot{\theta} = \ddot{\theta}$ = 0, and for the Bead-Herpolhode motion $\frac{\partial V_{EFF}}{\partial \theta}$= 0..(c) Equation (c) is Stationar at Positions which satisfy relation g.sin θ = a.w^2.sin θ.cos θ..(c1)

1. The Solutions of (c1) are at Position sin θ = 0 where issues θ = 0
2. The Solutions of (c1) are at Position sin θ.cos θ = sin 2θ = 0 and is θ = π & 2θ = 2π
3. The Solutions of (c1) are at Position cos θ = $\frac{g}{a,w^2}$ and for θ = 0 then $w^2 = \frac{g}{a}$

Remarks

1. Solution (1) for θ = 0 exists always and from Figure-3-(2) the velocity vector $\breve{v}$ is applied at the center of mass K_0, Anti-clockwise Spinning. Fig-3-(3)
2. Solution (2) for θ = π exists always and from Figure-3-(2) the velocity vector $\breve{v}$ is applied at the center of mass K_0, Clockwise Spinning. Fig-3-(3)

3. Solution (3) where since θ = 0 exist the Prior and from Figure-3-(2) velocity vector v̆ is applied at the center of mass K_0, and the ± Spinning is very fast from the center and is such that $w^2 \geq 0$, and happening when {*from relation* $\frac{g}{a}$} the radius $a \Rightarrow 0$.

4. The Solution $w^2 \geq \frac{g}{a}$, Determines the Stability of the Polhode System.

   The Solution $w^2 < \frac{g}{a}$ and θ = 0, Determines Stability at Point O Position and $-V_{EFFE}$.

   The Solution $w^2 < \frac{g}{a}$ and θ = π, Determines Stability at Point O Position and $+V_{EFFE}$.

   For Solution $w^2 > \frac{g}{a}$ and θ = 0, The Position is Unstable at Point O with $-V_{EFFE}$.

   For Solution $w^2 > \frac{g}{a}$ and θ = π, The Position is Unstable at Point O with $+V_{EFFE}$. Meaning the Black – Holes Origination.

   From Solutions $w^2 = \frac{g}{a}$, the θ = 0 = π = 2π Positions are Unstable and below Point with $+V_{EFFE}$. meaning an evolving and Operational Black-Hole Stable Origination.

5. All above Stable Solutions result to the determination of the two Vector - magnitudes that of Angular-velocity w̆ and that of Angular Momentum $\overline{B}$, differently Black-Hole.

Both magnitudes define the Unit-Energy Vectors → {Unit-E Vector $R = \frac{\sigma}{J.w^2} = \frac{\sigma}{B}$} ← When the Unit-E.Vector R is Placed ON [AB≡2R S.Diameter of Spaces-Neutral-circle] Then the Energy-Monad $|\overline{R}|$ exists on Space-Monad $|AB| \equiv |\overline{R}|$ as {E+S -Monad $|\overline{R}|$}, i.e. IS THE {Energy - Space - Monad $|\overline{R}|$}, with the magnitudes, Spaces Sides $\lambda_n = 2,\sqrt{R^2 - a^2_n}$, &, Quantum Critical-Side $a_n = \frac{1}{2}\sqrt{4R^2 - \lambda^2_n}$,

The Quantization of Energy in Spaces, happens when follow the *Archimedes formula* for Duplication of Sides as $\lambda_{2n} = \sqrt{2R^2 - R\sqrt{4R^2 - \lambda^2_n}}$ & Critical-Sides $a_{2n} = \frac{1}{2}\sqrt{4R^2 - \lambda^2_{2n}}$ Monad R $= \frac{\sigma}{J.w^2} = \frac{\sigma}{B}$ remains the same, while Spaces Sides change as above λ_{2n}, a_{2n}.

6a. The Mechanisms & Charges, For The Dual - Originations

THE NATURAL - Spaces of AB Diameter is the {$\overline{AB}$ Unit Vector}.

1. Spaces ≡ The Infinite (+) Circumscribed-Regular-Polygons in $\overline{AB}$. [Fig-1].
2. Anti - Spaces ≡ The Infinite (-) Circumscribed-Regular-Polygons in $\overline{AB}$.[Fig-1].
3. Sub. - Spaces ≡ The Infinite (+) Inscribed-Regular-Polygons on Diameter $\overline{AB}$.
4. Neutral-Spaces ≡ The Infinite Circles on Diameter $\overline{AB}$. (The Sphere on AB)
5. {MFMF} ≡ The Gravity cave = 10^{-62} m.
6. {PNS} ≡ The Planck`s cave Length = 10^{-35} m.
7. Vacuum ≡ [10^{-62} -- 10^{-35} m] = The in-between distance ⇒ THE Origination-Mechanisms in Spaces & the Origin of Charges.
8. Action-Spaces ≡ The Infinite Quaternion - monads → $\vec{z} = (s + \overline{v}.\nabla i) \equiv \overline{AB} \equiv \sqrt{s^2 + [\overline{v}.\nabla i]^2}$], or $\vec{z} = x + y. i \equiv \overline{AB} \equiv$ moduli, r, is their magnitude [r = | r | = $\sqrt{x^2 + y^2}$], on Unit-Diameter $\overline{AB}$. The [QMAS], [Fig-1]. For Quaternion $\vec{z} * \vec{z} = (s + \overline{v}.\nabla i)^2 = s^2 + [\overline{v}.\nabla]^2 + 2.s\overline{v}.\nabla i = s^2 - \overline{v}^2 \pm 2.s\overline{v} = |s|^2 - |\overline{s}|^2 \pm 2.|s|.|\overline{s}|$, for $|\overline{v}| = s$

   (a) The {STPL} Mechanisms in Spaces, from Charges in Under-Planck`s-Length ≡ *The Six Triple Points Line Mechanism*. It is a Mechanism on where the Charges of Opposites,

[⊕↔⊖], React as Centrifugal force F_C which in turn changes → (Action-Reaction ≡ + Spin – Anti Spin) ←of [MFMF] Space to Rotational motion Angular-velocity = $\bar{\bar{w}}$ and Angular-Momentum = $\bar{B}$. [Fig-14].

(b) The {TVPM} Mechanisms, from Charges on Two-Perpendicular-Vectors-Edges ≡ *Markos Two - Vectors Three - Poles Mechanism*. [Fig-19]. In Fig-8|4|, Vector $\overline{CP} \perp \overline{CA}$ Vector, which changes the Energy ≡ The Stress σ of The | $\overline{CP}$ x $\overline{CA}$ | Square, to 2 - Halve ± Squares on Vectors-axis for Equilibrium.

(c) The {TCIC} Mechanisms, from Charges In Three-Vectors-Conductors-Edges ≡ *Markos Tetrahedron Cub Inscribed-Circumscribed Circles Mechanism*. [Fig-27 29]. In Fig-6, The Tetrahedron Conductors -Vectors $\overline{DA} \perp \overline{DB} \perp \overline{DC}$, CARRY Energy as Electromagnetic-Fields (Forces-Frequencies-Stresses-any motion) TO Inscribed Sphere (Nucleus of Atoms), TO Cube Vertices (Electrons-Position), TO Circumscribed Sphere (The Electrons Orbits) for Equilibrium and for transferring Information and Signals.

(d) The {TBOH} Mechanisms, from Charges In Two-Orbits-Pins & Drain. *Markos Atoms Bonding Bracket - Hook Mechanism*. [Fig-2]. In Fig-9, The ⊖ - Electron Precesses due to the Gravity and Produces Work which is stored in a second Orbit. This 2-Orbit equilibrium exists from the Existing ⊖ -Electron ≡ DRAIN and from the New ⊕ - Nucleus ≡ The PIN. The Second -Orbit called as the Bracket – Hook -Mechanism, with which Atoms and Compounds are Bonded. [99-104]

9. The {LNCS} Mechanisms, from Spaces - Action ON Quaternion - monads $\overline{AB}$ is the Lagrange`s Non Conservative Systems for generalized coordinates, where the System is subjected to forces that do not have Potential or, d (T + U) ≡ δW_{NPF} = 0, as exists in the Gravitational Force G and from which are created → The Elementary Particles using the STPL – Mechanism, and all Universe using the ISTCCS – Mechanism ← and The DUAL → The Black - Holes ← as equation $\delta W_{NPF} = \sum_{i=1}^{N} Q_i . \delta q_i$, [Fig-3, 21, 22].

7a. The Material-Geometry and E - Geometry in Physics and Chemistry
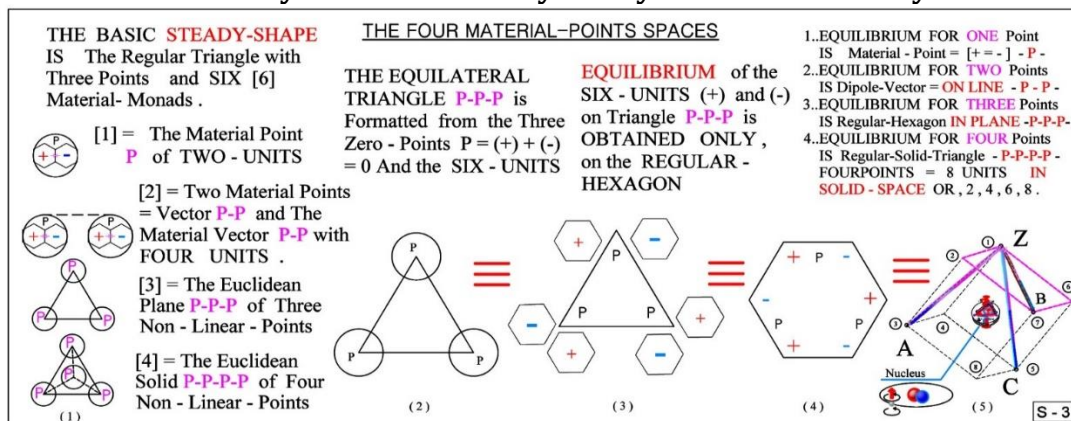

Figure 4: The Relation between The [+] Spaces, [-] Anti-Spaces, [+ -] Sub-Spaces of Euclidean & Material-Geometry in a circle (R, OA) of Three-Dimensions.

In (1), The Euclidean Geometry, E-G, is defined upon the *Number of Points* which can define the Specific Space i.e.

• The → One-Point in E-G is defining *One-Material-Point-Space,* the M-P-S.

- The → Two-Points are defining the *Line-Segment-Space,* the Line-M-P-S.
- The → Three-Points are defining the *Plane-Triangle-Space,* the Plane-M-P-S.
- The → Four-Points are defining the *Volume Tetrahedron-Space,* the Volume-M-P-S.
- The → Five-Points are defining the Volume *Regular Pentahedron-Space* the SV-M-P-S. and so on, representing the Steady-Stable-Regular Geometrical-Formations.

The corresponding to the Material-Geometry-Units are for:
1. One-Point → Two-Units, $[\oplus],[\ominus]$ with Dimension as, *the Material-Vector* $[\oplus \rightarrow \ominus]$
2. Two-Points → Four-Units, $[\oplus],[\ominus]$ with One Dimension as, *the Material-Line*
3. Three-Points → Six-Units, $[\oplus],[\ominus]$ with Two Dimension as, *the Material-Plane*
4. Four-Points → Eight-Units, $[\oplus],[\ominus]$ with Three Dimension as *the Material-Volume* Keeping *the Property of Edge-Points* to be the Vector $\oplus \rightarrow \ominus$ then Bond is the Potential to the Unique-Steady-Stable-Regular Material-Geometry-Formations.

In (2-3-4-5). All Units in Vectors follow Quaternion $q = [s+\bar{v}\nabla i] = \overline{AB}$ Properties i.e.
- $[\oplus] \rightarrow$ the Positive constituent of Quaternion at, Point A.
- $[\ominus] \rightarrow$ the Negative constituent of Quaternion at, Point B.

In Euclidean-Geometry E-vector $\overline{AB}$ carries Point A to Point B as, Vector A → B In Material-Geometry M-vector $\overline{AB}$ carries Energy, $\oplus$, from Point A to $\ominus$, Energy of Point B as, $\oplus$ moves to $\ominus$, which is as *The Periodic - Pattern*. Velocity $\bar{v}$ = The rate of change (m / s) in AB, Therefore Units are Formatted according to the *Steady-Material-Geometry-Formations* which are:
- The Line-Vector in cave, r,which is the Simplest with Double number of 4-Units
- The Plane-Regular-Triangle in Orbits, is the most Stable Shape of 6-Plane-Units
- The Volume-Regular-Tetrahedron in Space is the most Stable Shape of 8-Volume Units, *the Cube*, which are the Crystals. The Regular n-Hedron are for all others.

This is the Why The Glue-Bond, Bond is the Potential, between the 6-Units formulates the Regular-Hexagon as the First Steady - Plane - Formulation in nature as in Fig-18-

GENERAL
1. The Objective Reality is composed of two elements, that of Distance. *The Space* ds, and that of Motion, *or else the called Energy*, and it is the content of all sciences [32]
2. The Euclidean-Geometry describes the Space only but Not the Energy as is *motion* [48]
3. The Solution of all the Unsolved-Ancient-Greek-Problems [50] opened the way to the Material-Geometry [54] which Incorporates the Motion → In-Space as $(\oplus\leftrightarrow\ominus) \equiv 0$,[61] The Space exists in Energy - Caves as *Energy-Quantum-Quantities* [39], while Motion or Energy exist in Caves as an *Confined - Stationary-wave* which is either Static or an moving Energy-Storage or an Energy-Box [68]. The Any-Two Opposites (+), (-) exist in Nature and are found everywhere from → Zero-Point (0) $\equiv$ [+ = -] or as (+ A) + (- A) = 0 in E-Geometry and → $[0] = [\oplus\leftrightarrow\ominus] \equiv f_n$, $[\oplus\leftarrow ds\rightarrow\ominus] \equiv ds$ in Material-Geometry, to the aperon, $\pm \infty$ where → The Space $\equiv$ ds, *is the nodes distance*, and motion exist as the Vibration Type ← [52]
4. The Electron-Nutation in Hydrogen cave Produces Energy due to g effect, as an minimum frequency $f_n \equiv 2,8398447. 10^{10}$ H and thus exists in all Atoms. This Energy in Hydrogen-

Cave is an Electrical -Magnetic Conductor, which is The Pin of Atom-Plug and enters Into the other Atom-Sockets, which are the Orbit-Bracket–Hooks. These are the Hands of Atoms, i.e. → The Atoms-Plug, Placing their Pins into the other Atoms Drains ≡ Holes, and so is done that what we say the Bonding of Atoms.

5. Because of the Resonance frequency between all Atoms, and because of the Common Hydrogen, so Atoms Bond by Pinning and form Molecules and all Compounds in this Cosmos. This is Possible because the Periodic-System of Atoms is NOW modulated into 4 New - Categories with Only-One New- Criterion which is The Number of (±) Energy Conductors in Atoms, related to their Stability.

6. The first Solid (4 Points not coinciding) is The Tetrahedron, and the first Material Space for the Two elements (+), (-), are (4 x 2 = 8 Positions for Electrons) The-Cube, i.e. the Tetrahedron is Into the Cube and Into its Ex - Sphere, and this because all the Circles on Tetrahedron exist on Sphere.

7. When 1-8 Electrons ⊖ are Placed on the Cube's Vertices and into this Onion - System, then Automatically are formed the 1- 4, Energy-Conductors, where issues [⊕ ↔ ⊖] = [p ↔ e] = [Atom-Plug = + Electric Vector ↔ - Magnetic Vector ≡ Drain ≡ Hole], and are the Actions between Opposite. With this New modulation [The,1, 2,3, 4, Energy-Conductors ≡ Atoms-Four Fundamental frequencies], Conductors exist on System and ARE ACTIVE + as → The-Electric-Vectors ← and simultaneously PASSIVE ≡ Drains (-) as → The-Magnetic Vectors ≡ Holes ←. The Zero-State Conductors are those whose 8 Cube-Positions are all filled with electrons. The Multiple – Plug-Pins Atoms can Plug all the less number Electrons - Atoms and can Be-Plugged from all the greater number Electrons-Atoms.*With these Four modulations are formed all Atoms and their Compounds* these are the Mechanisms of, Water, the Cells, RNA, DNA, Cancer, and everything in this Energy - Space Universe.

8. In the same way, is that where an 110 Volt Refrigerator Can't-Plug into 220 Volt Socket and this because are different in construction, the same to Atoms-Plug which differ to the Number and the Length of their Pins. Hydrogen is the Multiple-Plug-Pins Atom which can Plug all Atoms and itself.

9. The New-Atom-Structure is consisted of → a) The Nucleus IN-Sphere b) The Dynamic Electro-Magnetic -Tetrahedron, c) The N-Outer- Cube, d) The Orbitals in EX-Sphere.

10. In the New-Atom-Structure, the Master-Keys - Resonances are the Communications-

11. Article [110] is the completion of [72-82] and of Physical interpretation of the three constants of nature, that of Planck constant L_P, Newton`s Gravitational constant G, and the Gravity Constant g, with a rigorous Geometrical and Mechanical logic.

It was shown [33-36] that Un-clashed Fragments through the center, O, consist the Medium-Field Material-Fragment → [± s^2] = [MFMF] ≡ *The Chaos*, the Base for all motions ← and Gravity which is a force [∇i] while the clashed with the constant velocity, $\bar{c}$, consist the Dark matter [±.$\bar{c}$.s] and the Dark Energy [$\bar{c}$.∇i], *so declaring that* → Antimatter-Galaxies and Antimatter-Asteroids can exist only as Dark-matter or and Dark-Energy and Not as Antimatter light, - c. From the velocity Breakages [± s^2 = ± $(w\,r)^2$], [∇i = 2$(w\,r)^2$] and the between instress σ, become the Waves {*The distance* ds = r =|AA$_E$| which *is the Work embedded in monads and it is what is vibrated as frequency f*} of the Material-Point with their Vibrating equations of motion and after to become the Waves.

- A → The Particles with Inherent Vibration occupying the Distances r = ds =Positions $|AA_E|$ the {Monad = OK_0 = R} ≡ Energy In Vacuum Spaces are the Fundamental Particles, as $[\pm \bar{v}.s^2]$ → Fermions, *Quarks and Leptons*, and → $[\pm \bar{v}.\nabla i]$ → the *Bosons,*

- B → The Gravity-Antigravity Field-Energy g without Vibration being a Stationary-Rotating Spinning Material Point M-P. $[\pm s^2]$ → The [MFMF] Neutral Field ≡ The Energy Chaos, and their *Negative Energy* Binder - Field $[\nabla i]$ → as ± Positions, For $\bar{r} = \pm \bar{r}$, then + $\bar{S}$ = + Gravity – Spin = + $\frac{\pi.r^3\sigma.\Phi}{2}$ ⟹ The Gravity Spin - $\bar{S}$ = - Gravity – Spin = - $\frac{\pi r^3\sigma.\Phi}{2}$ ⟹ The Antigravity Spin

- C → The Dark-matter and the Dark-Energy constituents are as below, $[\pm\bar{c}.s^2]$ → The Dark-matter, and the Binder Gravity-Force $\bar{g}$ ≡ $[\nabla i]$, $[\bar{c}.\nabla i]$ → The Expanding Dark -Energy, *Positive-Energy,* which both are moving with light - velocity, $\bar{c}$, causing the Universe to Grow. *From above in,* A, *and,* C, *case → Energy as Velocity,*$\bar{v}$, and, $\bar{c}$, *exists in the Discrete monads,* $\pm \bar{v}.s^2$, *and,* $\pm \bar{c}.s^2$ only.

2. The Case of Transportation of Energy, from Chaos to Stationary-Material-Points.

Dark Energy DE ≡ $[\bar{c}.\nabla i]$ (©), Acting ⟹ *Positive-Energy,* on the Five Constituents $\{[(\nabla i), (+s^2), (-s^2), (+cs^2), (-cs^2)]\}$ then Produces,

- $[\pm s^2]$ → The [MFMF] Field $[\pm \bar{c}.s^2]$ → DM-DE Field of, DM = Dark matter, and DF = Anti matter = Dark Energy.

- $[\pm\bar{v}.s^2]$ → The PNS Space, Particles Fermions, and $[\nabla i]$ → G_f ≡ Gravity-Force in DM-DE Stationary Rotating = Field.

- $[\bar{v}.\nabla i]$ → The Bosons,

- $[\bar{c}.\nabla i]$ ≡ The DE → Dark Energy → The Travelling-Energy with, $\bar{c}$, velocity.

- $\vec{c}$ x (©) $[\nabla i]$ ≡ G_f → The Gravity Force.

In all above issue Kepler - laws, denoting that *Macrocosm and Microcosm* Obey the Newton`s Laws of motion, in all Scales, as was Proofed.

1b. The Spaces and the Energy States

In Articles [87-89] is Elucidated the Duality-Photon as Particle and as Wave. The Photon`s Charge $\bar{q}_{Photon}$ = $\frac{v.\sigma\Phi}{2\pi r}$, Transfers Information`s and Energy-Storage in Nature. In Articles [87-88-89-90] are Elucidated The Gravitational constant G, The Stresses σ, The Light-velocity $\bar{c}$, The Gravity $\bar{g}$, The Hydrogen cave H, The electron - $\bar{e}$, The electron-charge $\bar{q}_e$, The Weak-Forces $\bar{B}_F$, The Strong – Forces Q_T, and The Uniform-Resonance - Frequencies f_R, for Atoms Structure. In Articles [91] is Shown How, The Three Circularly-Placed Physical-Charged- Breakages on The-Three Spaces [⊕ - ∅ - ⊖], Or on the 3-Extreme -Triangles of STPL- Mechanism which is The - Thrust for The-Origination of all the Cosmic- Particles in Linear & Rotational Conductors Frequencies, either into the Atoms or to their Compounds [91].

2b. The Flow Plan of the Space - Energy Universe.

1. It was shown in [9-18] what is Primary-Neutral-Space [PNS] as well as what is Infinity [15], and Rotational Energy ≡ Λ ≡ Torque ≡ momentum [22] so [PNS] → $[AP_A ↔ P_B B]$ ≡ Work W =|EP |= $[|\Lambda|.\nabla + \Lambda x\nabla]$ → W = ∫ P.ds = 0 → and so exists Time T = ds / v = 0. The Cause is, because Primary Point, A, is nothing and then is Quantized as → an Point B

(which is following the Principle of Virtual Displacements W = ∫ P.ds = 0 = Force x Displacement = Energy x Space, and according to the ancient Greek Philosopher Anaximander [The non-existent (i.e. the Point A), Exist when is Done, it occurs as (Point B) i.e. ≡ [Το μη Ον, Ον γίγνεσθαι] = [Το Τίποτα υπάρχει Όταν αυτό Γίνεται] Time is Not existing because ds = ∞. 0 = constant [21-22]. The relative Range is the Displacement AB → which is The Monad-Space as AB = 0 → k → The Infinity Anti-space.

2. [PNS] The Energy-Quaternion $[|\Lambda|.\nabla + \Lambda \ x\nabla] \equiv \bar{z} \equiv [\lambda \pm \Lambda \ x\nabla] \equiv |\vec{z}o|^{w}$. e^{[\vec{\Lambda} \nabla i / \sqrt{\Lambda' \vec{\Lambda}}}. [Arc Cos $(w|\lambda|/2. |\sqrt{\vec{z}}`o. \vec{z}o|]$} which is the Beyond-gravity Forced - field. [25]. As in case (1) → there is No change of ds → so Time T = ds / v = 0. The Cause is the Lever arm moment of the Primary Forces and is Quantised as the Torque, < The Torque modelling of microscopic description >, and later the Momentum [19]. The relative Range of the Infinite Points is the Displacement AB = $\vec{z}$ to Infinity ∞.

3. [PNS] → The Temperature-Quaternion$[\lambda, \pm \Lambda \ x\nabla]$ = z_0 = Λ = n.R.T / V(λ = C) → The Gas equation → No change of ds → so Time T = 0. The Cause is the Heat causing vibration on molecules and is Quantised as → Intensity (Pressure $\sigma = \frac{2\pi r.f}{\Phi} = \frac{2\pi r.c}{\Phi.\lambda} = \frac{2\pi r.\sigma}{\lambda}$) between them. The relative Range of the Infinite Points in Displacement is AB = λ = = 2πr which is the wavelength λ.

3.2b → k1 ≡ z = $|z_0|$. e^{- i. (9.\pi /2).10} = The Energy Under Planck length, The Tank Cavity of Gravity where $\bar{v}_E$ = 0 and ET = Λ.v B + Λ x v.$\bar{B}$ and is the accelerating removing, Rotating energy Λ to v$\bar{B}$, m = 0 and ET = Λ.v.B + Λ x v.$\bar{B}$ and it is the linearly removing, Energy Λ towards v B, so No change of ds → therefore Time T = 0. The Cause is the High Heat Conservational Balanced Tank of gravity and is Quantised as The Fundamental Particles (Bosons and Fermions). [30] The relative Range is of the Infinite Points in Displacement |AB| to Infinity.

4.2b. → k2 ≡ z = $|z_0|$.e^{- i.\left(\frac{5\pi}{2}\right)10} = The Energy In Planck length → ∞ changes of ds → so Time T = t. Cause are the Infinite changes of Space and is Quantised as → Matter, Energy and the Existent as caves. The Material-Points occupy a relative Range in Planck`s length as In Fig-1-

3.c. → k3 ≡ z = $|z_0 = \Lambda|$. e^{- i. (\pi /2). 10} = The Black Hole Temperature, Balanced Tank Energy length, where PV = n.R.T and (PA = Wd = σ.T [4]) → No change of ds → so Time is T = Constant. Cause is the Very high Heat causing vibration on molecules and is Quantized as → Intensity = (Pressure = Fd = C. $\bar{x}$ = ± Co.w.[$\sqrt{A^2 - x^2}$]) i.e. Cause → (Constant Co) → Quantized as New monad and relative Range is Infinity, or The meter of Space-Energy- changes is time T, which exists in k2 Quantized-Region only.

From Quaternion equation $\bar{z} = [s \pm \bar{v}.\nabla i] = [s^2 \pm \bar{v}.s^2] = [\bar{A}\leftrightarrow\bar{B}] = [+|\bar{s}|^2 \leftrightarrow - |\bar{s}|^2]$ is seen that motion, $+|\bar{s}|^2$ at Point A, is transferred as motion - $|\bar{s}|^2$ at Point B. This issues from Quaternion equation $\bar{z} = [s \pm \bar{v}.\nabla i] = [s^2 \pm \bar{v}.s^2] = [\bar{A}\leftrightarrow\bar{B}] = [+|\bar{s}|^2 \leftrightarrow - |\bar{s}|^2]$. Fig -1- i.e. The Vectors-Sum of, n, Vectors, either On The Same Linear-Direction Or, On Non Linear-Directions Results on The – Resultant - Vector $\overleftrightarrow{R}$ of the Linear-Vibration and between the Quaternion Edge-Poinds $[\bar{A}\leftrightarrow\bar{B}]$.

Conclusions 1:
Energy In Primary-Neutral-Space [PNS] and, In Under Planck1s length ≡ The Tank Cavity of Gravity is an Standing Wave with NO-Time existing as T = ds / v = 0.

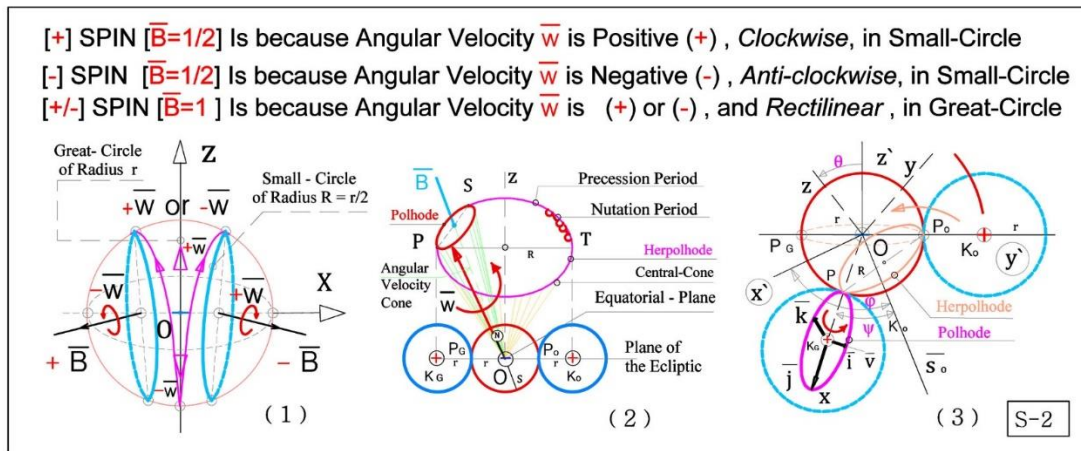**Figure 5: The Rotation of Opposites [$\ominus$ ↻ $\oplus$] and the How and Why Spin is equal to 1, $\frac{1}{2}$**

In (1). The Glue-Bond-Pair of Opposites [$\ominus$ σ $\oplus$] of the Rectilinear motion for both → Great circles and the Small circles, *creates* on the Stress-common-curve Rotation of circle of radius r, *the* velocity $\bar{v}$ = w.r = $\frac{2\pi}{T}$.r = 2πr. f = $[\frac{\sigma}{2}]$.(1+$\sqrt{5}$) = ± σ.Φ, and the frequency f = $\frac{(1+\sqrt{5}).\sigma}{4\pi r} = \frac{\sigma \Phi}{2\pi r}$, of a Period T = $\frac{4\pi r}{\sigma(1+\sqrt{5})} = \frac{2\pi r}{\sigma.\Phi}$ and, ± σ, where then exist two equal and Opposite Forces, → the Centripetal, F_p, and the Centrifugal, F_f force. The Produced work as Energy is → E = h f = $\bar{B}$ = Momentum = r m v = r $[\frac{\pi r^2}{2}]$ w r = $[\frac{\pi r^4}{2}]$w = $[\frac{\pi r^4}{2}]$ 2πf = π². r⁴.f = $\bar{B}$, where f = $\frac{(1+\sqrt{5}).\sigma}{4\pi r} = \frac{\sigma.\Phi}{2\pi r}$, meaning that the Stress - Pointy Rotation creates the Angular – Momentum and momentum as, $\bar{B}$, $\bar{w}$, in the Zero Wave-note. [70]

The Glue-Bond Pair of Opposites [$\ominus$ - $\oplus$] in the → Left Direction of Small circles creates a Rotation on circle of radius, R, with velocity v = w.2r = $\frac{2\pi}{T}$.2r = 4πr. f = $[\frac{\sigma}{2}]$.(1+$\sqrt{5}$), where frequency f = $\frac{(1+\sqrt{5}).\sigma}{8\pi r} = \frac{\sigma \Phi}{2\pi r}$, Period T = $\frac{8\pi r}{\sigma(1+\sqrt{5})} = \frac{2\pi(2r)}{\sigma.\Phi}$, where ± σ are the two equal and opposite Centripetal,F_p, Centrifugal,F_f force, with Energy → E = h.f = $\frac{h.\sigma\Phi}{2\pi r}$, in One Wave- note. The Glue-Bond Pair of Opposites [$\ominus$ - $\oplus$] in the → Right Direction of Small circles creates a Rotation on circle of radius, R = 2 r, with velocity v = w.2r = $\frac{2\pi}{T}$.2r = 4πr.f = $[\frac{\sigma}{2}]$.(1+$\sqrt{5}$), where frequency f = $\frac{(1+\sqrt{5}).\sigma}{8\pi r}$, Period T = $\frac{8\pi r}{\sigma(1+\sqrt{5})} = \frac{4\pi r}{\sigma.\Phi}$ and the ± σ are the two equal and Opposite Stresses, Or Centripetal, F_p, Centrifugal, F_f force.

Energy is → E = h f = $\frac{(1+\sqrt{5}).\sigma h}{8\pi r} = \frac{\sigma\Phi h}{4\pi r}$, in the One Wave - note. In (2) The hollow-Cone of 90°, between Angular-momentum-vector $\bar{B}$ and Angular-velocity- vector $\bar{w}$ when illuminated by a circularly Polarized light beam, then any changes in Spin ≡ $\bar{B}$ of the Polhode Cone POT and the exchange of Linear and Angular Momentum between Electromagnetic fields and the material Media are shown as the Profiles of the Phase and the Angular-velocity-vector in the POT- cone cross-sectional Plane, i.e. The Space can be eternally twisted but cannot disappear. [70]

Measurements of Physical-Properties such as Position, Momentum, Spin and Polarization, performed on Entanglement Particles gives rise to seemingly Paradoxical effects considering Systems as a whole and the ERP Paradox. The answer is given in Figure 1-(the right-2) where is shown each Property of the Material-Point. The Spins [$\ominus$ ↻ $\oplus$] Presuppose [$\ominus$, $\oplus$] Material-Points which are The caves in PNS Space.

Conclusions 2:

The Energy in Spins, Presuppose that the Caves to be in [PNS] Space and in the Under Planck1s length. The $\pm$ Spin is created from the Opposite Centripetal, F_p, Centrifugal, F_f, forces. The Energy E is initially absorbed in [PNS] and in all quantized regions, either as momentum (mv) or as Rotational Momentum (Λ = r. mv). From momentum relation $\overline{B}$ = m r v = m r^2 w = m r^2 (2πf) = $\frac{J.w}{2}$ = [$\frac{\pi r^4}{4}$].[2πf] = $\frac{\pi^2 r^4 f}{2}$, then the Mass of the elementary Particles is → m = $\frac{2\pi^3 r^4 . f^2}{r^2 2\pi f}$ = $\frac{\pi^2 r^2}{1}$f = [$\frac{\pi r.v}{2}$]v, Or m $_{EP}$ = $\frac{\pi.r^2}{4}$ = $\frac{\pi.(1,07.10^{-7})^2}{4}$ = 8,992023.10^{-15} Kg, in the min Planck`s cave d $_{Pc}$ = 1,07. 10^{-7} m → which agree with the *Diffraction Energy mechanism* for all Space Levels of quantization and which are the Energy Particles only,where for base e = 2,71828 and k = 0 → L $_v$= e^i.($\pm$ π/2).b the Space is e^ (-15,7079) = 1,78118.10^{-7} m

Since velocity v = s / t = distance / time then for constant s, then v is also constant and t = T, the Period of vibration and for any constant momentum Λ = λ_2 m_2 v^2_2 / 2 = λ_2 m_2 [wλ_2] ^{2} = 4π^2. m_2 . λ^3_2 .f ^{2} = [4π^2. m_2 . λ^3_2] f ^{2} = Co. f ^{2} = Λ, i.e. In all Rotational Systems time T is constant and equal to the Period of Rotation which is the meter of changes. For monads in k2 $\equiv$ PNS region E_T = [$\Lambda\nabla$ +Λ x ∇] = [Λ.M+ΛxM] = $\sqrt{ m. v^2_E + [\Lambda. v_B + \Lambda \times v_B]^2}$ = $\sqrt{ m. v^2_E + [\Lambda. v_B + S^2]^2}$ = h. f = h / T = h.v / λ, i.e. In every monad issues λ.mv/2 = h f = λ Λ and Kinetic-energy Λ = h f / λ = C_o.f where the constant C_o = E/ f ^{2} a gauge magnitude depended on the angular velocity $\overline{w}$, the velocity $\overline{v}$, and then wavelength λ is conserved as momentum (mv) or angular momentum (Λ = r. m$\overline{v}$ = m. wλ^2/4) or both. Considering oscillatory motion as the simplest case of Energy dissipation, *and this because any other motion is not differently conserved,* then TheWork embodied in Dipole is an < Spring-mass System with viscous dumping >

with co variants, energy E, mass m, velocity $\overline{v}$ = $\overline{v}_E$ = $\dot{x}$ wavelength λ, and then Energy dissipation is the damping force equal F d = C $\dot{x}$ where C is a constant and $\dot{x}$ the velocity.

Following the steady-state of displacement and velocity then → x = A. sin(wt - θ) ← and $\dot{x}$ = w.A.cos(wt-θ) = w x, where the Energy dissipated per cycle is the executed work which is, W d = F d.dx = $\oint$ C $\overline{x}$ dx = $\oint$ C $\overline{x}$ ^{2}dt = π C w A^2 = (π/4) C wλ^2 = [π^2/2] C. f. λ^2 → The Energy dissipated per Cycle Wd by the damping Force F $_d$, is mapped by writing velocity $\dot{x}$ in the form $\dot{x}$ = wA.cos(wt - θ) = $\pm$wA.[$\sqrt{1 - \sin^2(wt - \theta)}$] = $\pm$ w. [$\sqrt{A^2 - x^2}$] where then the Dumping force F $_d$ = C. $\dot{x}$ = $\pm$ C_o .w. [$\sqrt{A^2 - x^2}$] and by rearranging [$\cos^2$(wt-θ) +$\sin^2$(wt-θ) =1] then is Fd ^{2} / [C_o .w. A] ^{2} + x^2 / A^2 = 1, i.e. Energy = motion is mapped as an Ellipse with F $_d$,x mapped along the vertical and horizontal axes respectively and the Energy Dissipated Per - Cycle is given by the area enclosed by the above ellipse.

The Total Energy E = $\lambda_2 . \Lambda$ which is embodied in monad $\overline{AB}$ is moving as an Ellipsoid in the Configuration of co variants λ, m, v = $\bar{v}_E$, as Kinetic (Energy of motion $\overline{\Omega}$) and Potential Energy (The Stored Energy in λ, m, v) by Rotation and Displacement, on the Principal axis (through the centre of monad), which is mapped out, as in Solid material configuration by the nib of the Rotational-Vector $(\overline{\Omega}) = \delta \bar{r} c) = [\bar{v} \therefore c + \bar{w}. \bar{r} n]. \delta t$, as the Inertia-ellipsoid [The Poinsot's - Ellipsoid of construction] in an Absolute Frame which instantaneously Rotates around vector axis $\bar{w}$, θ, with the constant Polar distance $\bar{w}.Fd/|Fd|$ and the constant angles ϑ_s, ϑ_b, traced on Reference - Cone [Body Frame] and on [Absolute Frame] cone, which are rolling around the common axis of, $\bar{w}$ vector, without slipping, and if $(\overline{\Omega})$ = Fe, is the Diagonal of the Energy Cuboid with the three dimensions $\bar{a}$, $\bar{b}$, $\bar{c}$ then follow Pythagoras conservation law, with the three magnitudes [J,E,B] of Energy-State following → Cuboidal, Plane, or the Linear Diagonal direction. [25 - 26]. The Transportation of Energy on Edge - Points happens in Material Geometry, while the Transportation of the Edge-Points as, Positions, exists in Vector Geometry only. Since in Vibrations the Deformation of the Spring is an equilibrium Position in Δ, and the Spring-Forse k Δ = w = m g = Gravitational force w acting on mass m, then exists → m $\ddot{x}$ = ΣF = w = k $[\Delta + x]$ ....(1), and because k Δ = w we obtain w ^2_n = k/m.. (2) and (1) becomes → $\ddot{x}$ + w ^2_n = 0,...(3) ← i.e. The Transportation of Energy is a Harmonic -Vibration in cave Δ. It is shown [92] that in PNS-Space the two equal and Opposite Stresses $\pm \sigma$, are the Two Centripetal, F_p, Centrifugal, F_f force where Energy is → E = h f = $\frac{(1+ \sqrt{5}).\sigma h}{8\pi r}$ = $\frac{\sigma \Phi h}{4\pi r}$, in the One Wave - note.and the frequency f = $\frac{(1+ \sqrt{5}).\sigma}{8\pi r}$, Period T = $\frac{8\pi r}{\sigma(1+\sqrt{5})}$ = $\frac{4\pi r}{\sigma.\Phi}$.
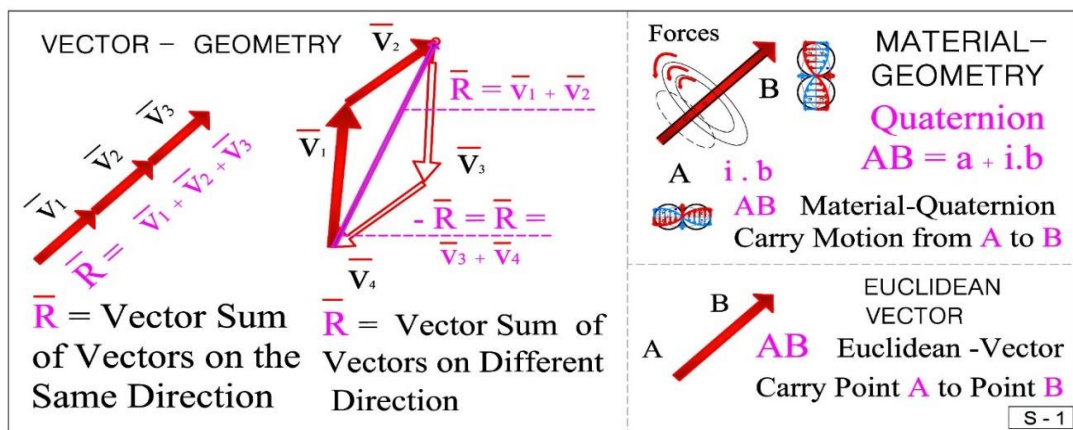

Figure 6: Vector-Geometry follows the Geometry rules as the left figure. EuclideanVector Carry Point A to Point B as, AB, following the Geometry rules, while The Material – Points ≡ Quaternions, Carry the Motion ≡ Energy, from Point A, to the Point, B, linearly. In both cases the Points are nothing Possessing Zero-magnitude and Infinite- directions. The Two Points in E-Geometry consist the Straight-line-Segment Possessing |AB| - magnitude and the |A→B| Directions while the Two-Points in Material-Geometry denote Two-Elements as one (+) and one (-) Performing the Space ≡ |AB| of motion = Energy ≡ [A ↔ B] in |AB| Space.The above comparison can bee seen in Figure-1- also.

Conclusions 3:
From above Analysis is Seen the Path which Energy as motion follows to Propagate. This Path is the Resultant of the Vector-Sum, or the Quaternion as Material–Point. The Vector-Sum-length

as a Geometrical-Resultant-Vector is the Quaternion`s Edge Points Energy-vibration which transfers the motion from the vibrating-Edge-Points.

Thus Stress $\to \sigma = [\frac{2\pi r}{\Phi^2}].\, f_n \leftarrow$ is the Way of Information and Storage in Nature. Extending above to all Planetary Systems and to Universe is seen that BIG - BANG. has Never been existed, Inversely Energy $\equiv$ Motion $\equiv$ Matter followed the (+) Stress-Storage, $\pm \sigma = [\frac{2\pi r}{\Phi^2}].\, f_n$, and Anti-Matter followed the (-) Stress-Storage and Material-Geometry.

3b. The Complex Numbers & Quaternion

1. De Moivre´s formula for complex numbers states that the multiplication of any two complex numbers say z_1, z_2, or $[z_1 = x_1 + i.\, y_1, z_2 = x_2 + i.\, y_2]$ where x = Real [z] the Real-Part and y = Imaginary[z]. the Imaginary Part of, z, is the multiplication of their moduli r_1, r_2, where the moduli, r, is the magnitude $[r = |r| = \sqrt{x^2 + y^2}\,]$ and the addition of their angles, φ_1, φ_2, where φ = arg.(z) = atan2.(y, x) and so, $z_1 * z_2 = (x_1 + i.\, y_1).\, (x_2 + i.\, y_2) = r_1.\, r_2\,[\cos(\varphi_1 + \varphi_2) + i.\, \sin(\varphi_1 + \varphi_2)$ and when $z_1 = z_2 = z$, and $\varphi_1 = \varphi_2 = \varphi$, then z = x + i y and z. $z = z^2 = r^2.[\cos 2\varphi + i.\sin 2\varphi)$ and for, w, complex numbers becomes the Euler`s, $z^w = r^w.\,[\cos(w\varphi) + i.\, \sin(w\varphi)]$ and so for r = 1 then $\to z^w = 1^w.\,[\cos\varphi + i.\, \sin\varphi]^{\,w} = [\cos.(w\varphi) + i\,\sin.\,(w\varphi)]$. The n.th root of any number z, is a number b $[\sqrt[n]{z} = b]$ such that $b^n = z$ and when z is a Point on the Unit circle r =1, the first vertex of the Polygon where φ = 0 is $[b = (\cos\varphi + i\,\sin\varphi)]^{\,n} = b^{\,n} = z = \cos(n\varphi) + i.\sin(n\varphi) = [\cos(360/n) + i.\, \sin(360/n)]^{\,n} = \cos 360\square + i.\sin 360\square = 1 + 0.i = 1$ i.e. The w-Spaces which are the repetition of any Unit complex number z (multiplication by itself) is equivalent to the addition of their angle and the mapping of the Regular Polygons on circles with unit sides, while the n Spaces which are the different roots of unit 1 and are represented by the Unit circle and have Points z = 1 as one of their vertices, are mapped as these Regular Polygons *inscribed the unit circle*, Figure-1- (1) Since also $z^w = z^{-n}$ and $z^{-n} = z^{-1/n} = z^{+n}$ therefore complex numbers are even and odd functions, i.e. are Symmetrical about y, axis (mirror) and also about the origin. Euler`s rotation in 3D Space is represented by an axis (vector) and an angle of Rotation which is a Property of complex number and defined as $\bar{z} = [s \pm \bar{v}.i]$ where s, $\bar{v}$ are real numbers and i the imaginary Part such that $i^{\,2} = -1$. Extending imaginary Part to three dimensions, $v_1, i, v_2, j, v_3, k \to \bar{v}.\nabla i$ becomes Quaternion which has 1 + 3 = 4 degrees of freedom i.e. [dx – dy – dz – df] $\equiv$ The Space - Energy- Mode.

2. De Moivre´s formula for the n-th roots of quaternion, where q = k.[cos.φ+ [∇i].sin.φ] is for w = 1/n, $q^w = k^w.\, \cos.w\varphi + \varepsilon.\, \sin.w\varphi]$ where, q = z = $\pm$ (x+y.i) decomposed into its scalar (x) and vector Part [y.i] and this because all the inscribed regular Polygons in the Unit circle have this first vertex at points, 1, or at,- 1, (for real part φ = 0, φ = 2π) and all others at imaginary Part where, k = T_z = Tensor (the length) of vector, z, in Euclidean coordinates which is k = $T_z = \sqrt{x^{\,2} + y^2_1 + y^2_2 + y^2_n}$ and for imaginary Unit vector $\bar{a}$ (a_1, a_2, a_3, a_n, w) the Unit vector,ε, of imaginary Part is $\to \varepsilon = (y.i / T_y) = [y.\nabla i] / [T_y] = \pm (y_1.a_1 + y_2.a_2) / \sqrt{y^2_1 + y^2_2 + y^2_n}$, the rotation angle $0 <= \varphi < 2\pi$, $\varphi = \pm \sin^{-1}(T_y / T_z)$, cos$\varphi$ = x / T_z, which follow Pythagoras theorem for them and for their reciprocal quaternions $\bar{a}$` [$\bar{a}.\, \bar{a}$`= 1]. Since also the directional derivative of the scalar field relation $y.(y_1, y_2, …. y_{n,,})$ in the direction, i, is $\to i\,(y_1, y_2 …. y_n) = i_1.\, y_1 + i_2.\, y_2 + i.n.y_n$ and is

defined as → i. grad y = $i_1.(\frac{\partial y}{\partial 1})$ + $i_2.(\frac{\partial y}{\partial 2})$ +…= $[i.\nabla].y$, which gives the change of field y, in the direction → i, and $[i.\nabla]$ is the single coherent Unit, Therefore coexistance between Spaces,Antispaces and Sub-Spaces of Any monad → $\vec{z} = x + y.i = \overline{AB}$, is happening through the general equation which follows

- $m^{\pm[s+v\,\nabla i]} = q^w = (T_q) \bullet. [\cos.w\varphi + \varepsilon.\sin.w\varphi]$, where,
- $m = \lim(1 + 1/w)^w$ for $w = 1 \to \infty$, $q = z = \pm (x+y.i)$
- $\sin\varphi = y / \sqrt[2]{x^2 + y^2}$, $\cos.\varphi = x / \sqrt[2]{x^2 + y^2}$, $|z| = \sqrt[2]{x^2 + y^2}$
- $T_q = \sqrt{x^2 + y^2_1 + y^2_2 + \cdots..y^2_n}$, $Ty = \sqrt{y^2_1 + y^2_2 +.\,.\,...y^2_n}$,
- $\varepsilon = (y.i / T_y) = [y.\nabla i] / [T_y] = \pm (y_1.a_1 + y_2.a_2) / \sqrt{y^2_1 + y^2_2 + \cdots y^2_n}$ i.e.

The Spaces, Antispaces and Sub-Spaces of Any monad → $\vec{z} = x + y.i = \overline{AB}$ follows the Euclidean Geometry (2a) and the Energy flow (2b), as in Figure -1-3-21. The Vectors-Sum of Vectors, Either on Points on The Same - Linear-Direction of Vectors, Or on Non-Linear-Directions, Results onto The-Resultant-Vector $\overleftrightarrow{R}$, of all System-vectors and becomes *A Linear-Vibration between Quaternion-Edge-Points*. This Remark denotes that Quaternions which are composed of Real (+charge) and of Imaginary Part (- charge) act only on the *Resultant-Direction End-Points* carry Energy from One - Edge to another- Edge as in Fig – 4 - The Above Property of Imaginary-Part ≡ Energy shows The How Elementary Particles are Originated from the three Charges (of The Spaces [⊕ - ∅ - ⊖]), Circularly-Placed on The-Three-Triangles of STPL- Mechanism. [93]

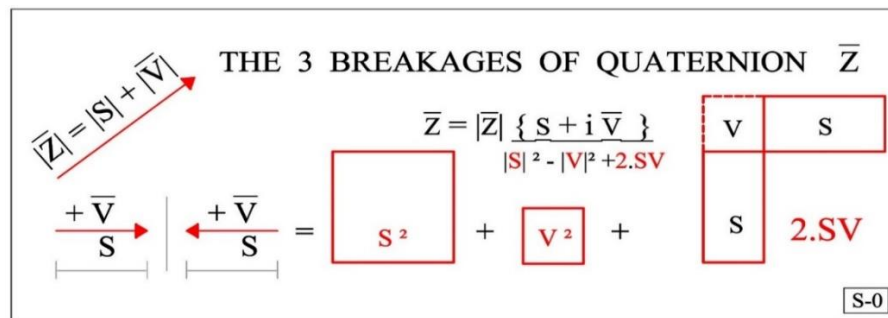**Figure 7: The Action of quaternion $\bar{z}.\bar{z} = [s + \bar{v}.\nabla i]^2 \equiv s^2 - |\bar{v}|^2 + [2.\bar{w}].|s\,r|.\nabla i \equiv s^2 - s^2 + 2.s^2$ and follows Pythagoras theorem of the Euclidean Geometry.**

4b. The Stability of Space - Anti-Space, in the Neutral-Space

The number of Moulds of Stationary-States are as, $2^{n=1-4\,Points} \equiv 2,4,8,16 \equiv 4$–Types i.e. Monads are formed from the first 4- Moulds as → The 1-Point which is everywhere, the 2- Points which form Vectors, the 3- Points which form the Planes, the 4- Points which form the Volumes. For n > 4 as this is the Atom Structure, follows the Sustainability of the Spaces and Anti-Spaces. Since Space-Energy Structures follow the M-Geometry Stability these follow the Mould of Spaces $2^{n=3} = 8$ Elements which is The-Cube as was shown before for the Atoms structure Fig-5-28. The Atoms-Bonding follows → Space ≡ Electric-field & Anti-Space ≡ Magnetic-field ←

5b. The Quantum Interference of the Duality-Photon

Quantum Interference is the Phenomenon when, a Photon Interferes with itself. [92E]. This Proposition is Right when Photon is considered having a twin-existance, [101]-3c.P-21. The

Problem is to determine the expression of the Power developed by Gravitational Force. From Dual-Photon-equation, $\bar{v}.[\overline{\overline{f_n}} + f_n] \equiv |\frac{v}{\pi^2.r^4_n}|.\overline{B_n} + |\overline{c}|\,f_n$, when $c = 0$ or $\vec{c} = \overleftarrow{c}$, then Photon motion becomes $\rightarrow |\frac{v}{\pi.r^4_n}|.\overline{B_n} \leftarrow \equiv$ Spin. i.e. The Stationary Photons exist as their Spin only. This Rest-Space is the Part $|\frac{v}{\pi^2.r^4_n}|.\overline{B_n}$ and its Communication Code to be the term $|\frac{v}{\pi^2.r^4_n}| = |\frac{w\,r}{\pi^2.r^4}| = |\frac{2\,v}{2\pi^3 r^4}|$, The Rest Space is a Stationary Wave with fundamental frequency $f_1 = \frac{1}{T_1} = \frac{\bar{\lambda}}{c}$, with an Electric Wave, that is acting on vector $\overline{c} = (i.\,c_x + j.\,c_y)$. It was Proved [78] that the Newton`s Gravitational constant G does NOT effect on Plane Surfaces, But on Volume Surfaces only. This Property of, G, means that the only one Force which effects on the Rest-Space *in Torsional motion*, and Onto the light velocity vector $\overline{c}$, is the gravity force g only.
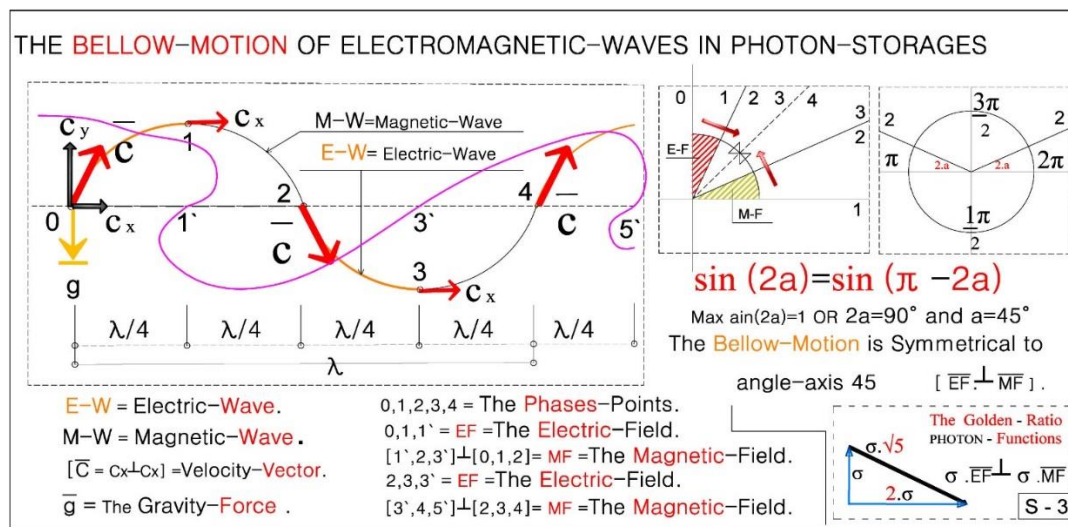

Figure 8: The Stability of {⊕ - Space [Electric Wave],{⊖ -Anti-Space [Magnetic Wave] of Sub-Space {[⊕↔⊖] ≡ ds ≡ [⊕←ds→⊖] – or –The Neutral-Space [A $_E$, B $_E$, C $_E$]} :

Since c is constant, it is analyzed to, (c_x, c_y) in any two directions x, y where x $\perp$ y and y to be the gravity direction on where gravity is acting.

The Produced Work is in y - Range, $S_y = c_y\,t - \frac{1}{2}g\,t^2 = c\sin at - \frac{1}{2}g\,t^2$, where maximum Range is $S_{max-y} = c_y{}^2 / 2g = \frac{(c\sin at)^2}{2g} = [\frac{c^2}{2g}]\sin^2 a$, happening at angle a = 90° and where $\sin^2 a = 1$. Since at Point (1) the velocity $v_y = 0$, the motion in 0 -1, may be considered as falling in linear motion and so issues $v_y = g\,t$ or time t = $\frac{v_y}{g} = \frac{(c\sin at)}{g}$, as halve Period with total Period $\rightarrow$ T = $\frac{2\,(c\sin at)}{g}$. In figure are seen the 4-Point Positions, at where change the Phase and the Work done in each Phase of Photon`s inner motion. The 4- Phases correspond to the Wavelength. λ, as λ / 4. distance with 90° = $\frac{\pi}{2}$ to be the change of Phase. This means that the Produced Work in Prior Phase - Area as the Golden – Ratio Pattern is Stored in the Next and Perpendicular Phase-Area.

The Total distance for doing Work is the Wavelength λ, in total Period T as λ = c_x T = c.cos a.T or λ = c. cos a. $\frac{2\,(c\,\sin at)}{g}$ = $[\frac{2\,c^2}{g}]$ sin a, cos a = $[\frac{c^2}{g}]$ sin $2a$, ……(1) since from trigonometry exists, sin $2a$ = 2 sin a. cos a.

The maximum wavelength λ happens when sin $2a$ =1 or 2a = 90 ° and a = 45 °, i.e. →The Total motion in the Wavelength, λ, corresponds to the angle a = 45 °, meaning that the motion of Space, *The Electric-field*, and Anti-Space, *The Magnetic-field*, equilibrium as an Bellow. The two Wings in 90° Type simultaneously oscillate to its 45 ° Bisector -axis, and the Produced Work from *The Electric-field-area* is Stored into *the Magnetic-field - area.* The common axis of the two Perpendicular fields, carry the G-Ratio *Surfaces,* Runs with the same velocity $\bar{c}$ to the direction of the inner motion or, From 90°→ 45°, the created Work W = c_y g, is Symmetrically Stored from 0°→ 45°.

The created Work in [0-1] is in → λ / 4 of transverse surface and is stored in the horizontal and perpendicular surface [1`-2] = λ / 4. Surface [0 -1 -1`] = ⊥ Surface [1` -2` -2].

The created Work in [1-2] is in → λ / 4 of transverse surface and is stored in the horizontal and perpendicular surface [2-3 `] = λ / 4. Surface [1 -2 -1`] = ⊥ Surface [2` -3` -2].

The created Work in [2-3] is in → λ / 4 of transverse surface and is stored in the horizontal and perpendicular surface [3 `-4] = λ / 4. Surface [2 -3 -3`] = ⊥ Surface [3` -4` -4`].

The created Work in [3-4] is in → λ / 4 of transverse surface and is stored in the horizontal and perpendicular surface [3 `-4] = λ / 4. Surface [3 -4 -2] = ⊥ Surface [4` -5` -4].

Since from Trigonometry issues sin 2π= sin$(180 - 2a)$ = sน $2(90 - a)$ then (1) becomes.
λ = c cos a $\frac{2\,(c\,\sin at)}{g}$ = $[\frac{2\,c^2}{g}]$ sin a, cos a = $[\frac{c^2}{g}]$ sin $2a$ = $[\frac{c^2}{g}].\sin(\pi - 2a)$ = $[\frac{c^2}{g}].\sin(\frac{\pi}{2} - a)$ …(2) since $\sin 2a = \sin(180 - 2a) = \sin(\pi - 2a)$, and also $\sin 2a = \sin(180 - 2a) = \sin(\frac{\pi}{2} - a)$ ……(1a)

From Dual-Photon-equation, $\bar{v}.[\boxed{f_n} + f_n] \equiv |\frac{v}{\pi^2.r^4_n}|.\boxed{\overline{B}_n} + |\,\overline{c}\,|\,f_n$, when c = 0 or $\vec{c} = \overleftarrow{c}$, then Photon motion becomes → $|\frac{v}{\pi^2.r^4_n}|.\boxed{\overline{B}_n} \leftarrow \equiv$ Spin. i.e. The Stationary Photons exist as their Spin only. The Rest-Space is the Part $|\frac{v}{\pi^2.r^4_n}|.\boxed{\overline{B}_n}$ where v = n.π.c, and Communication Code to be the term $|\frac{v}{\pi^2.r^4_n}| = |\frac{n.\pi c}{\pi^2.r^4_n}| = |\frac{n.c}{\pi.r^4}| = |\frac{w\,r}{\pi^2.r^4}| = |\frac{2\,\pi.f}{\pi^2 r^3}| = |\frac{2.f}{(\pi\,r^3)}|$ with Electromagnetic Radiation the in monads frequency-f, which is satisfied by the relation $|\frac{2rw}{2\,v}|$= π /2, π, 3π /2.,,, n.[π/2], and w = n.$[\frac{\bar{v}}{2r}]$x$[\frac{\pi}{2}]$, where n = 1 → ∞. When two Photons strike each other $\vec{c} = \overleftarrow{c}$, or reflect on a wall, then c = 0, and from Spin $\overline{S} = \overline{B} = \pi^2. r^4. f_1$ its angular velocity w = n.$[\frac{\bar{v}}{2r}]$ x $[\frac{\pi}{2}]$ = 2π.f_1 , where then its fundamental frequency f_1 = n.$[\frac{\bar{v}}{2r}]$x$[\frac{1}{4}]$ = n.$[\frac{\bar{v}}{8.r}]$ which for n = $[\frac{16.r^2}{v.c}]$ increases to $\frac{\lambda}{c}$. r^3 and Photon-motion becomes → $|\frac{v}{\pi^2.r^4_n}|.\boxed{\overline{B}_n} \leftarrow \equiv$ Spin, i.e. The Stationary Photons are Spin only and consist

an Stationary- Harmonic - Vibration, (1) – (1a), with the same Period T of the two Waves [92-E}.

The effective-Range of the Wavelength λ, for the Dual-Photon is related to the consistence v_x, v_y, velocities to any two Perpendicular directions of Electromagnetic fields E_x, E_y.

The maximum displacement in y, direction is the centrifugal $\lambda_x = \frac{v^2 y}{2 E_y}$ and sisin(φ) λ_y = = $\frac{c^2 . \sin^2(\varphi)}{2 E_y}$, where φ = The Phase difference between the two vibrations. Since time t, is the same between the two vibrations where then t = $\frac{v_y}{E_y}$ = $\frac{c.\sin(\varphi).}{E_x}$ and since the Period = 2.t then T = $\frac{2c.\sin(\varphi).}{E_x}$ ...... (2) From the in x → direction velocity v_x = c. cos(φ), and displacements, λ_x, λ_y, become, $\lambda_x = v_x T = c. \cos(\varphi)\{\frac{2c.\sin(\varphi).}{E_x}\} = \lambda_x = \{\frac{2.c^2}{E_x}\}. \sin(\varphi).\cos(\varphi) = \{\frac{c^2}{E_x}\}. \sin(2. \varphi)$ (3)

Since in trigonometry issues, $\sin(2\varphi) = \sin(\pi - 2\varphi) = \sin(\frac{\pi}{2} - \varphi)$ and in Physics E_x = g, then → $\lambda_x = \{\frac{c^2}{g}\}. \sin(\pi - 2\varphi)$, $\lambda_y = \{\frac{c^2}{g}\}. \sin(\frac{\pi}{2} - \varphi) \leftarrow$ ....(4) i.e. Photons occupy

1. The Dual-Property of Particles and Waves,
2. The Dual-Property of Stationary and Spin,
3. The Dual-Property of Simultaneous existence,
4. As Electric and Magnetic Fields in, λ_x, λ_y,
5. The Bellow motion in transverse E-M- Waves as is the way to fly,
6. The Transverse E-M - Waves are ⊥ to the Propagation-Direction,
7. The Electric Effective Range is thrusted through G only. [Fig-5].
8. With the same initial velocity is succeeded the same Length-Range with Two complementary angles. since v_y = c.,

THE ORIGINATION OF THE PHYSICAL LOOPS ≡ CAVES

1c. The Gravitation Force G, and the Kick - Start: [78-79]
From where G, is Produced? → It was Prior referred that, Periodic excitation between *Primary Space* (+) and *Anti-Space* (-) may exist only as collision of Opposite, so Energy captured in Box-B_P , *Planck`s Loop*, contains these three constitute elements [(+),[↔], (-)] without the inner acceleration but the Material–extreme case of Periodic acceleration [→ ←] = 0 and which is the *Reciprocating motion* So, above property of Primary Space exists also and for all Primary Complex- Spaces. *Complex Spaces either at,* [(+)] *or* [(-)]*, constitutes may be realized,* exist, *separately* because of the → Primary-Opposites which Pull each other ← therefore *the Initial Property of Attraction,* G, *between Primary-Opposites continue issues and for All the other infinite Composite and Complex Structures as well as in all Groups of them.*

Since Force G is a Uniform-Pointy–Force, therefore needs a Conductor, a Layer, a kind of mass, to be spread and act on it as *Surface-force*, a Layer which is the Base or the Conductor Spin S, or the Stress g, as this is the *Growing-Golden-ratio-Pattern* Φ.

Because of this Stress-Layer g, *all the Energy-Structures Present* → Reaction to any motion ← i.e. *mass.* The Gravity acceleration g, produced from the in Material-Points acceleration is equal to the Pressure σ, and is the Conductor to all Waves as, Force G - Over-Layer - A → [A ≡ mass * g] → G_σ ≡ G, and Stress = g = $\frac{\sigma^2 \, r^2 . \Phi^2}{8}$ From Figure -18(3) is seen that Gravitational Force is Attractive following Newton inverse square law, and it is an Attractive-force [↔], *On any two Opposite-Elements* [(+), (-)] realized through a Layer of Unit-Stresses [σ = g], and becomes from an HUGE Magnet in Planck`s - Loop containing the whole Universe [89]. G - Kick-Start, *is Planck`s frequency* → f_P = 1 / T_P = $\frac{w}{2\pi}$ = $\sqrt[2]{\frac{1}{g.a^3}}$ *and in this world* the How this frequency can → *Enter, Format and cohesive, to the first or any other Energy-Cave in Planck`s length,* E-Unit Monad, 1 = g.f^2_n. a^3 = $[\frac{4\pi^2}{GM}]$. f^2_n. a^3, where g = $[\frac{4\pi^2}{GM}]$ as this was shown in [79] for Unit-Monad-relation.

An Energy-Rim = Cave is a Plane - Surface, *an orbit*, representing an Constant Energy becoming from the squared Frequency f_n^2, *Representing the Imaginary Part,* and r_P^3, Representing the Real – Space - Part of monad as equation 1 = k.f_n^2.r_P^3. The Stationary Energy is spread in one Plane as this happens for the Stationary-waves in Caves, while in Propagating - Energy in Two, as are the Electromagnetic Transverse waves. All these Energy-Rims consist the Quantized-Plane-curves as Fig-18. The two different motions of ⊕ Space, ⊖ Anti-space, in any cave r and in a Finite Space, *The Revolving and Periodic Excitation* Create an Eternal frequency which influence all other Spaces, *the caves.*

The minimum quantized-energy is stored in the Gravity-Layer, g, becoming from the Unit Energy of the sinus orbit. From equation, g = T^2 / a^3, and minimum - a then Period is T = $\sqrt{g.a^3}$ = $\sqrt{9,8076925.(2,1145016.10^{-11})^3}$ = 3,04513.10^{-16} s, Since the Unit-Work = Sine Integral = $\int_0^t \frac{\sin t}{t}$ dt =1, the semi-major axis, a, is a = 2,1145016.10^{-16} m, where frequency T^{-1} = f_P = 3,28393..10^{15} /s, corresponds to a Sphere-loop in Planck`s scale as (4 / 3).π.$r^3$ = 3,96. $10^{-32}$ $m^3$, and then the Energy in this Planck`s loop is the minimum quantized. From Planck`s Energy E = h. f_P = [6,6262. 10^{-34} J.s] x [[3,28393. 10^{15} / s] = 2,176. 10^{-18} J, and in eV becomes → [2,176.10^{-18}] / [1,6.10^{-19}] = 13,6 eV or, Energy in Gravity-Layer g ⟹ 13,6 eV = h f = h / T = h /$\sqrt{g.a^3}$.

The above quantity of Energy consist the *Hydrogen minimum Energy-Rim*, which becomes from Loop-equation a = $\sqrt[3]{T^2/g}$ = $\sqrt[3]{\frac{[3,04513.10^{-16}]^2}{9,80769251}}$ = 2,1145016.10^{-16} m, and it is the Energy-cave for the Unit Energy quantity. From Newtonian Constant of Gravitation relation issues, G = E = h. f_n = $[\frac{c.r^3}{a^3}]$.[g_L k_L] = g.k_E = g. [g_L k_L], and since for The First Chemical-Neutral-*material-cave*, r, constants g_L, k_L are equal to unity *i.e.* g_L = k_L = 1, then above Energy of E = 13,6 eV, in Hydrogen-Plane-orbit corresponds to the minimum-Energy-Cave, or → *The Phys-Quantized-Energy-Structure* ← Since G Pushes → g, on the Earth-Unit-coefficient, k_E , and because is the *Starting for the first time beginning,* of this *Mechanism* then from G = g.[g_L k_L] ≡ g.[1*1] ≡ → g ← or G = g, meaning that In Earth System of Gravity, the Newton`s Gravitational constant G, and Gravity

g are equal, while in all other relative Systems are equal to the proportionality of their Local-constant k_L.

Gravity, g, is the minimum Energy becoming from the in-storages angular Velocity acceleration $a = v^2 / r \equiv 9,8076941$. in the Material-Point. [72] Photon *is a Material-Point,* Box B_R, with fix-ends *Inward-cave* r, and which is the *Energy Storage* B_R, *Outward-cave*-r is an *Electromagnetic-Radiation* on wavelength $\lambda = c\ T = c / f_P$ which EM-Radiation, *carries* the Box B_R.

Universal Gravitational constant $G = g\ k$ related to g, k_R, is a Force and through the Static g becomes the Principal stress $\pm\ \sigma$, or frequency f_R which exists in nature as motion in the minimum *Resonance Golden-ratio-frequencies* $f_R = f_{n=1}$, and this because of the Periodic motion, *in Excitation,* where issues the Coulomb-Dipole law and which Coulomb inverse law is as, $F = k_c\ [q_1 . q_2 / r^2] = k_c\ [\oplus\rightarrow\leftarrow\ominus]\ /r^2 = \frac{8}{\pi r(1+\sqrt 5)}\ [\frac{B}{r^2}]$, and Coulomb constant $k_c = 9.10^9$ $Nm2/C^2$, i.e. *Because of the* Periodic excitation *between the, Space* (+) *and Anti-Space* (-), $[\oplus\rightarrow\leftarrow\ominus]$ *exists only collision of opposite where the inner acceleration is equal to zero Gravity* g, and this because of the Material extreme-case of the Periodic acceleration $\{[\rightarrow\leftarrow]=0\}$ which is zero, *the Net force vanishes, issues the Coulomb Dipole-law where Static - Stress* g*, becomes from the Stationary constant Dipole moment* $\bar p \equiv \bar B \equiv$ as *momentum* which is the analogous in the Revolving motion where *then issues* $\rightarrow G = g\ k = k_E\ g = g.k_R\ g_R = \bar p$, $g_c = \sigma = \frac{Force}{Area} = \frac{g.Mass}{Area}$ For Earth-System mass $M_E = 5,9723.10^{24}$ Kg and Radius $R_E = 6378,137$ Km $= 6,378.10^6$ m, then Earth-constant $k_E = \frac{R^2_E}{M_E} = \frac{[6,378.10^6]^2}{5,98.10^{24}} = 6,8115518\ 10^{-12}$ and $G = g\ k_E = [9,8076941]$. $6,8116.10^{-12} = 6,68056.10^{-11}$ $m^3/ N.s^2$ becoming from g, k_E only, i.e. G as force Pushes $\rightarrow$ g as Stress energy in $\rightarrow k_E$ constant.

Now is Proved that, the *Gravitational Constant* G *is the mechanism* or *the mould,* for the First-kick-Start upon this Unit-Granular-Energy-Stress-Layer, g, to formulate in that orbit a, into Planck`s cave the lightest and the less-energy mass Particle of this Universe, which is the Hydrogen with the minimum *Quantized-energy* of 13,6 eV.

The Centripetal acceleration in Photon cave due to Pressure σ, where issues only Rotational Energy $E_R = \bar B . \bar w = 2L= J.w^2$, and $2E = B\ f$, or $\rightarrow 2.(0,5.m.c^2) = m.c^2 = 0,5.\pi.r^4.c^2/4$, then $4.\bar B. f = c^2.r^4$, where the Golden ratio frequencies $\rightarrow f_n = [\frac{n.\sigma.\Phi}{2.\pi.r}] \equiv \frac{n.(1+\sqrt 5).\sigma}{2.\pi.r} = c^2.r^4 / 4.\bar B = \frac{E}{h} \leftarrow$ i.e. The box B_P, or the Planck`s Cave, carried with Light velocity c and Pressed into the Planck`s Loop, as $n\ c^2 = n.\ c\ c$, becomes the Gravity g, which is a stress by which Gravitational-force G is communicating as, $g_G = [\frac{\pi\ r\ v^4}{2}].e^3 = 9,808238$ m/s.

Gravity is the minimum Unit-Stress-monad in Planck`s scale becoming from a M-Point and which is Under -Planck`s - length region. Since also acceleration in a Material-Point (*Centrifugal-Centripetal*) becomes from the *Principal Stresses* $\pm\ \sigma$, therefore constant $g_G \cong \pm\ \sigma = \frac{Force}{Area} = \frac{g.Mass}{Area}$ $= \frac{G}{k}$, and for Unit-G constant k becomes, $k = \frac{System\ Area}{System\ Mass}\ G$ *where* $\rightarrow \frac{1}{g} = \frac{k}{G} = \frac{System\ Area}{System\ Mass}$ and $G = k$ g_G, and for the Earth, $G \equiv g.k_E \equiv g.[g_L\ k_L] \equiv [\frac{T^2_P}{a^3}].[g_L\ k_L] \equiv 9,808238*\ 6,8116.10^{-12} \equiv$

$6,68056.10^{-11} \frac{m^3}{Ns^2}$, So G, is The Pulling and Cohesive Force on all the Quantized-Energy-Structures which communicates with everything due to *Periodic excitation* on all Spaces.

From equation g = G / [g_L k_L], is seen that g becomes from G under Local-laws, <u>And also, Gravity</u> g, is the Unit-Energy-Path, *Quanta of Gravitation,* due to M-Point Frequency $f_g \cong \pm \sigma$ from the Revolving motion, and also the Unit-Energy-Stress per Surface and for the Force - G, *is the Permitted Path,* or the communication Conductor on all Energy Wave Structures, In and Out Planck`s length.

<u>Remarks :</u> Gravitational Force,G, is the Pressure which every Object in the Universe Exerts on every other, *whether Small or Big* and is equal to $F_{grav} = \frac{G.M.m}{d^2} = \frac{g.R^2_E M.m}{Md^2} = \frac{g.R^2_E .m}{d^2} = \frac{mg.R^2_E}{d^2}$, and G $= \frac{g.R^2_E M.m.d^2}{Md^2} = \frac{g.[R^2_E]}{M} = g. k_E$, where $k_E = \frac{[R^2_E]}{M}$, and g = The minimum Quantized work as acceleration $\equiv 9,8076941$ m/s^2, k_E = The Earth Local-coefficient between the two constants g, G. For Earth (E) $\rightarrow k_E = r^2_E / m_E$, For Bodies (B) $\rightarrow k_B = r^2_B / m_B$, For any Body $\rightarrow$ Local Gravity $g_L = k_E / k_L$.

From relation G = g k_E = 9,8076941.6,8116.10^{-12} = 6,68056.10^{-11} m^3/ N.s^2 and from relation $1 = c. r^3. f_P^2 \rightarrow f_p = \sqrt{1/cr^3}$ and from f = E/h then $\frac{E}{h} = \sqrt{1/cr^3}$ or $\rightarrow E = h. \sqrt{1/c. r^3}$, $\frac{E^2}{h^2} = \frac{1}{cr^3} \rightarrow$ and, $E^2 = \frac{h^2}{c r^3}$, is an Energy relation between c, r.

Instances: [77]

1. *For Earth-System* mass M_E = 5,9723.10^{24} Kg and for Area $\rightarrow$ Radius 6378,137 Km = 6,378.10^6 m then the Earth-constant $k_E = \frac{[6,378.10^6]^2}{5,9723.10^{24}}$ = 6,811551810^{-12} and G $\equiv \sigma.\Phi^3$ = g k_E = 9,8076941* 6,8115518.10^{-12} = 6,6805616*10^{-11} m^3/Kg.s^2 i.e. *Gravitational-constant* G *becomes from* g, k_E , and issues G = 6,6805616.10^{-11} m^3 / N.s^2 ....(7) *For Black-Holes-System* mass M$_{BH}$ = 4,0.10^{52} Kg and for the Area Radius 3,08.10^{25} m, then Black-Hole-constant $k_{BH} = \frac{[3,08.10^{25}]^2}{4,0.10^{52}}$ = 2,3716.10^{-2} , $g_{BH} = \frac{k_E}{k_{BH}}$ = 6,81155.10^{-12} / 2,3716.10^{-2} = 2, 872.10^{-10}. $g_E \rightarrow$ i.e. For Earth-Unit-coefficient k_E = 6,81155.10^{-12} $\rightarrow$ Black-Hole –Unit-coefficient k_{BH} = 2,3716.10^{-2} m2/Kg, and Gravity acceleration of a Black-Hole is, g_{BH} = 2,872.10^{-10}. g_E, an expected explanation. For all Planes issues G = k_E g = g. k_L g_L, and for Black-holes also where, G = g. k_{BH} . g_{BH} = 9,8076941* 2,3716.10^{-2} * 2,872.10^{-10} = 6,6805616*10^{-11} *Meaning that Gravitational constant is the Same for all Systems. The Gravitational Force,* G, is the Pressure which every Object in the Universe exerts on every other, whether Small or Big and from Newton are equal to $\rightarrow$ F_{grav} = $\frac{G.M.m}{d^2} = \frac{g.R^2_E M.m}{Md^2} = \frac{g.R^2_E .m}{d^2} = \frac{mg.R^2_E}{d^2}$, G $= \frac{g.R^2_E M.m.d^2}{Md^2} = \frac{g.[R^2_E]}{M} = g. k_E$ where $k_E = \frac{g.[R^2_E]}{M} = \frac{g.M}{G}$, g =The minimum Quantized Work as change of velocity $\rightarrow$ acceleration $\equiv 9,807694$ m/s^2, k_E = The Earth Local-coefficient between the two Constants, g, G, and k_E.G = g.M For Earth (E) $\rightarrow k_E = r^2_E / m_E$, For Bodies (B) $\rightarrow k_B = r^2_B / m_B$, For any Body $\rightarrow$ Local Gravity $g_L = k_E / k_L$

2. Coulomb Electrical Force, $F_{electron} = k_c \frac{Q_1.Q_2}{d^2} = \frac{[\oplus \to \leftarrow \ominus]}{d^2} = \frac{8}{\pi r(1+\sqrt{5})} [\frac{B}{r^2}]$, where Coulomb constant $k_C = 9.10^9$ Nm^2/C^2

3. The Work done by the Electric field to Rotate the Dipole is W = $F_{electron} \cdot E_{Field}$.

4. The Work done in Material Point needs a Path to exit from the Box $f_R = [B_{PH}] \equiv [f_{1=N}, f_2, f_3, f_R = w^2{}_N] \equiv [E^2 + H^2]$, and from where is Propagated. Resonance-Path happens as the Force, EM-Radiation in Two directions, which can travel in any closed System, and for solids through Cauchy-Stress-Tensor where the two Conveyers $E \perp B \perp r \equiv \sigma_1 \perp \sigma_2 \perp \sigma_3$, can carry the Energy Storage r in System [+ - 0] and Change the Inner-Structure of this System to another or Destroy it.

In [70], the Work Produced In Material-Point $\overleftrightarrow{AB}$ is equal to $\to$ W = 2L = $\bar{B}. \bar{w}$ = J.w^2 $\leftarrow$ consisting the First-Energy-Store which is a Stationary Wave with, n lobes as, $W_{n(n+1)} = [\frac{4\pi r^2 f1}{3}].n.(n+1)$ and wavelength $\lambda_N = \frac{\sigma.(1+\sqrt{5})}{4\pi r} = \frac{n.\bar{B}}{4\pi r^2} = \frac{2n.\bar{c}}{w}$ of r = $\frac{m.\bar{c}}{q.B}$ related to M-Field B. In [75-B],The Permeable-Resonance-Path for M-Point is $\to$ The Resonance-frequencies f_R [S$\equiv f_{1=n}$,f_2, $f_R = w^2$] with $f_n = [n \frac{(1+\sqrt{5})\sigma}{4\pi r} = \frac{n\sigma.\bar{B}}{8 r^2}]$ related to Spin $\bar{B}$, Stress σ and cave r.

Since the frequency in Material-Point is $\to f_n = (\frac{n\sigma}{8 r^2}).\bar{B} \equiv [\frac{1+\sqrt{5}}{2}] \frac{\sigma}{2\pi r} \equiv [\frac{n\sigma}{8 r^2}].\bar{B} \equiv [\frac{1+\sqrt{5}}{2}]\frac{Stress}{Perimeter} \equiv [\frac{1+\sqrt{5}}{2}]\frac{Force [N]}{Area*L[m^3]} \equiv \frac{E}{h}$, Then it occupies the Property of the Golden-ratio Pattern Φ, and equation defines that the Material Point of frequency f_n, when collide with another Material Point, or with any other Particle or Particles then Produces another monad as $\to 1 \equiv A$ New Quaternion and the first continuous to be of the same Identity, frequency f_n, as before and from Euler`s, Rigid Body Dynamics work $\to$ W = 2L = $\bar{B}. \bar{w}$ = J. w$^2 \equiv$ h. $f_n \leftarrow$ i.e. The Frequency of Photon, is embodied with the $\to$ Growing-Golden-ratio-Pattern Φ and It Uses the Vibrating Physical Structures, or the same the Granular Material-Instruments, to Kick - Start all of them and everything in this world. The How In [75-B] Page 34.

Because of the Periodic excitation between, Space (+) and Anti-Space (-), [$\oplus \to \leftarrow \ominus$] exists only Collision of Opposite, where the inner acceleration is equal to zero Gravity g and this because of Material extreme-case of the Periodic acceleration {[$\to \leftarrow$] = 0}, and which is zero and the Net force vanishes, and in where issues The Coulomb Dipole-law and where acceleration g becomes from the Stationary constant Dipole moment $\bar{p} \equiv \bar{B} \equiv$ momentum and which is the analogous in the Revolving motion in where then issues $\to$ Gravitational force $\Rightarrow$ G = g k = k_E g = g. k_R g_R = $\bar{p}. g_c$ = $\sigma = \frac{Force}{Area} = \frac{Mass}{Area} g$

In Page-33 [77], the Earth-constant $k_E = \frac{R^2{}_E}{M_E} = \frac{[6,378.10^6]^2}{5,98.10^{24}} = 6,8115518 \ 10^{-12}$ and the Gravitational Force G = g k_E = [9,8076941]. 6,8116.10^{-12} = 6,68056.10^{-11} m^3/N.s^2 becoming from g, k_E only, i.e. G is a force which Pushes $\to$ g as energy in $\to k_E$ From Gravity relation G = g k_E =9,8076941.6,8116.10^{-12}= 6,68056.10^{-11} m^3/ N.s^2 and from Energy-loop relation 1= c. r^3. $f_P{}^2 \to f_P=\sqrt{1/cr^3}$, from f = E / h then f = $\frac{E}{h}$ = $\sqrt{1/cr^3}$ or $\to$ E = h.$\sqrt{1/c.r^3}$, and $\frac{E^2}{h^2} = \frac{1}{cr^3} \to E^2 = \frac{h^2}{c r^3}$, an Energy relation between the, c, r.

This relation is used for Black- Holes Energy where r, result to zero, [71]. The Permissible - Permeable - Resonance - Paths for the means, is as below.

1. Solids → The Normal-mode-Vibration - System $\{- w^2 [M] + [K] (X)\} = 0$
2. Liquids → The Cauchy Stress-Tensor as Momentum equation $\{\nabla.\sigma = -\nabla p +\nabla.\tau\}$
3. Gazes → The combined Avogadro`s Pressure - law $\{PV = n\ RT = n.mv^2/3\}$
4. Crystals → The Cauchy Ellipsoid-Stress-tensor where $\{E\perp B\perp r \equiv \sigma_1\perp \sigma_2\perp\sigma_3\}$
5. Molecules → The Lattice-Crystal-Arrangement with their Chemical Bonds relation
6. Atoms → The Energy-Rims with Chemical Bonds, Ionic, Covalent, relation
7. Particles → The Resultance of the One-Dimensional-Collision $\bar{v}_{ij}= \bar{v}_j - \bar{v}_i = \bar{w}_{ij}.\bar{r}_{ij}$
8. M-Points → The Resonance-frequencies f_R $[S \equiv f_{1= n} ,f_2, f_3,f_{R=}w^2] = f_n = [\oplus \leftrightarrow \ominus] = n\frac{(1+\sqrt{5})\sigma}{4\pi r} = \frac{n.\sigma.\bar{B}}{8\ r^2} \to$ i.e. the Golden-ratio-Pattern, which is related to Spin.
9. Cave-Orbit→ The Relation c. $L_s = L_v$, Light-velocity 3.10^8 m/s*1.10^{-42} m cave $=3.10^{-34}$ m^2/s are the Cave-Energy-Plane-Rims in Atom`s, Planet orbits.

In Vibrations of Systems, for Orbits issues $\to W = 4\pi^2.\frac{r^3}{T^2}.\bar{n} = 4\pi^2.r^3.f^2_p.\bar{n} \leftarrow$ which is the Energy in the Conic-Sections of Kepler`s Unit - Orbits.

The Energy-Storages r = $n.[\frac{\lambda}{2}] \equiv W_{n(n+1)}= [\frac{4\pi r^2 f1}{3}].n.(n+1)$, are travelling through Bodies and follow, Lame Stress Ellipsoid $n_1{}^2 + n_2{}^2 + n_3{}^2 = \frac{T_1{}^2}{\sigma_1{}^2} + \frac{T_2{}^2}{\sigma_2{}^2} +\frac{T_3{}^2}{\sigma_3{}^2} =1$ on Principal Stresses $\pm\sigma_1, \pm\sigma_2, \pm\sigma_3$, which is the Passage through which Forces (The EM-Radiation) travel in any Solid either it is in Motion or is at Rest. Laplace`s Orbital Angular-momentum $e^{i.2\pi n} = 1$ and for n = $0,\pm1,\pm2,\pm3,\pm$ n, consist the Eigenvalues Operator L_z which agree with prior Resonance-frequencies f_R $[S\equiv f_{1=N}, f_2, f_3,f_R = w^2]$ as wavelengths $\lambda \equiv [f_1 , f_2...f_n= w^2] \equiv$ the n lobes, or $\to$ $f_N = n\frac{(1+\sqrt{5})\sigma}{4\pi r} = \frac{n\sigma.\bar{B}}{8\ r^2}$, as the Principal-Stresses σ, and Resonance-frequencies f_R relation, which is Energy stored in the MP-lobes. [70]

Type - Particles at sites - Type of Bounding-Force - Properties - EM-Radiation
- Ionic: $\oplus, \ominus$ Ions - Electrostatic $\oplus \leftrightarrow\ominus$ - non-conductors - Infrared
- Molecular: Atoms or Molecules - Dipole Attraction - Repulsion - non-conductors - Chemical-Bonds.
- Covalent: Atoms - Network- Bonds between Atoms -non-conductors - EM-Spectrum
- Metallic: Atoms - Ions and Electrons Attraction - Conductors - E-conduction.

The Kinetic-Energy E_K of a moving Material-Point, as this is the Photon, is stored as motion in its Storage, r = $[n. \lambda/2]$, with the n frequencies $f_n = n.f_1$, with the n lobes, and with an fundamental frequency f_1. From above is seen the Passage and The-How EM-Radiation can travel in Crystals and which are the Cauchy-stress-Tensor, where exists $E \perp B \perp r \equiv \sigma_1 \perp \sigma_2 \perp \sigma_3$, in-where Energy Propagates along Directions without any Birefringence, and carries the Energy-Storage r, which radiation is The Conveyer.

Above procedure can be used in Cells, where cells are cases of an Birefringence material and the Resonance-Passage happens as the Force, an EM-Radiation in Two directions, can travel in

Cell through Cauchy-stress-tensor where the two Conveyers $E \perp B \perp r \equiv \sigma_1 \perp \sigma_2 \perp \sigma_3$, and can carry the Energy-Storage, r, in Cell, and alter the Inner-Structure of Cell to another desirable Property. From Inner-velocity equation $v = w\,r = (2\pi/T).r = 2\pi.f_1\,r$, wavelength $\lambda = cT = c\,/f_1$, cave $r = n.[\lambda/2]$, then $r = n.(c/2f_1)$ and $v = 2\pi.f_1[n.c/2f_1] = n.\pi.c$ or $v = n.\pi.c$....(4) showing that velocities in lobes are, $n.\pi$, times that of light and for $n = 1$ then $v = \pi.c$, more than three times faster of light velocity.

Because of the above velocity v, an E field is produced, which produces the $\partial D/\partial t$ field, which in turn produces the H field which produces the $\partial B/\partial t$ field and which again produces the E field, i.e. the Total EM-field regenerates itself as it Rotates, and is a Phenomenon happening in a Propagating Plane-Wave. Its Permeable - Resonance - Path is impossible in an Three-times Stronger EM-field because issues … (4)

2c. The United-Coulomb-Newton Law for Interactions
For a Stationary interaction the *Coulomb-Law-Force* is $F_C = \frac{k[q_1 q_2]}{r^2}$, and for Charges q_1, q_2 where Constant $k = 9,0.10^9$ N.m^2/C^2, and r, is the distance between the Charges.

For a Stationary interaction *Newton Law for masses* m_1, m_2 is $F_N = \frac{G[m_1 m_2]}{r^2}$, and for $\bar{v} = \bar{r}$ Conjugating Interaction, Energy $E = \frac{v^2}{2}[m_1 + m_2] = \frac{r^2}{2}[\frac{F1}{g} + \frac{F2}{g}] = \frac{F.r^2}{2}[\frac{1}{g} + \frac{1}{g}] = \frac{F.r^2}{2} = \frac{F.r^2}{2}[\frac{2.g}{g^2}] = \frac{F_N.r^2}{g}$, where F_N is Newton Force, and E is the Energy of the Field-System.$[\frac{g+g}{g*g}]$

Equating the two forces then $\frac{k[q_1 q_2]}{r^2} = \frac{gE}{r^2}$, or $\Rightarrow k[q_1, q_2] = g.E$ ……..(1) Equation (1) relates any two Charges q_1, q_2, with Field-Energy E, under vector $\bar{v} = \bar{r} = \bar{c}$

3c. The Origination of Light Velocity c
Gravity $g \equiv \frac{T^2}{a^3} \equiv \frac{1}{f^2_{n}.a^3} \equiv 9, 8076941 \rightarrow$ *The minimum Granular Quantized Energy,* The Forces Beyond-Planck-Length are $\rightarrow F = \Phi^3.$ $\boxed{[\oplus\,\sigma\,\ominus]} = \sigma\,x\,\Phi^3 \leftarrow (1)$-[87]

Force G acts $\rightarrow$ on Spinning M-Points on $\bar{S}$ through $\bar{g} \rightarrow$ on Planck`s - $\bar{B} \rightarrow$ on g_G, through the Resonance frequency f_R. It was Proved that $G = \sigma\,\Phi^3$, and $\sigma = \frac{G}{\Phi^3} = \frac{G.\sigma^3}{c^3}$, or $\rightarrow \sigma^2 G = c^3$...(2), where σ is a Stress between the frequencies. From Force-relation $F = \sigma A = (2\pi f\,r)\frac{A}{\Phi} = w\,r\,\frac{A}{\Phi} = \bar{v}\,\frac{A}{\Phi}$, is seen that force G becomes a velocity $\bar{v}$. In the case of Planck`s length this velocity is $\bar{c} = w\,r = \frac{\sigma.\Phi}{r}\,r_p = \sigma\,x\,\Phi = |\frac{G\,L_P}{r\,\Phi^3}|\Phi = [\frac{G.L_P}{r.\Phi^2}]$ and from Gravity relation $G \equiv \sigma\,x\,\Phi^3$, then issues $\rightarrow [\bar{c} = \frac{G\,L_P}{r.\Phi^2}] = [\bar{c} = \frac{2.G\,L_P}{\lambda.\Phi^2}]$ which is the Light-velocity vector.

Since r, becomes from the Beyond-Planck`s-Region then $\Rightarrow \bar{v} = \frac{F.\Phi}{A} = [\frac{G\,\Phi}{A}]$ ……(f) Equation (f) may be written as Force $G = \bar{v}\,\frac{A}{\Phi}$, which is a Viscus-Damping-Force where $\frac{A}{\Phi}$ is a constant of Proportionality and the equation of motion is $F_G = [\frac{A}{\Phi}].\dot{x}$ Force G is applied in all Quantized-

Universe A as Velocity $\bar{c}$ and as Stress σ on Spaces Anti-spaces as Spaces-relation $L_p = e^{i.(\frac{\pi}{2}+2k\pi).b}$, where from Material-Geometry [24-58], Space $\equiv 1$ and Anti-Space $\equiv \sqrt{1} = + 1, - 1$, and $\sqrt{-1} = i =$ The Imaginary Part into the $\rightarrow$ Anti-Space + Space $\equiv$ motion $\equiv i \equiv \sqrt[2]{-1} \equiv \sqrt[4]{-1} \equiv e^{-i.(\frac{\pi}{4}).b} = 0,707106781. b$.

The Base b, which for Natural logarithms issues << The Natural logarithm ln(x) of a Magnitude x, is the Power to which, e, would have to be raised to equal x >> and is Defining that $\rightarrow$ ln(x) is the Period-needed to Grow x, as this is in Integration $\int x$, so e^x is the Amount of Growth after Period x, and the Possible-Repetitive-Permutations for moulds and elements in which issues Mould $^{\text{Elements}}$ = The - Growth-Periods i.e. when Mould = Elements then is succeeded maximum and for e is e^e, and any $\log_x x$.

For $\log_x x$ and Base x = 10 then $\log_{10} 10 = 10^{10}$ and for the two elements $[\oplus, \ominus]$ is $10^{[10]^2} = 10^{20}$ Positions $\equiv$ Distances $\equiv$ r and since $10^{-x} = \frac{1}{10^x}$ then b = 10^{-20}, and The Anti-Space + Space-Positions are, $0,707106781.10^{-20} = 1, 0707106781.10^{-19}$. In this Way The Non-Dimensional-number $[0,707106781*10^{-1} = 0, 0707106781]$, Is Quantized in cave, r, as distance and Becomes The-Dimensional-Space in the Decimal - System b =10 as cave r, and which cave is monad r = 1, 0707106781 or, r = 1, 0707106781 m, having Unit-Area $\pi.r^2$ =3.601588 m2, and the QUA-Universe is A = 3.601588. 10^{-19} m2/s, which are The Space +Anti-Space Positions in Universe...(i)

From (h), light-velocity $\bar{v} = [\frac{G \Phi}{A}] = \frac{6,673692.10^{-11} 1,6180339887}{3,601588.10^{-19}.} = 2.99819938.10^8$ m/s i.e. Gravity Force G $\equiv$ motion, exists without mass and is Quantized $\rightarrow$ Spread in {Space and Anti-Space} or $\equiv$ QUA $\equiv$ {is The Quantized-Units In-Area of Space and Anti-Space}, and as a Mould Φ *Golden-Ratio,* exists in the *Impedance* b.

Impedance in Mechanics is the Friction Coefficient, where for Force G to be Proportional to the Light-velocity c = $\bar{v}$, then the Harmonic – Oscillation is an Dumped-Oscillator, and Can - Oscillate due to the excitation as,
  (a) with a frequency lower than in the Undamped case and an Amplitude Decreasing with time, the Under-Damped-Oscillator which Originates the Quantum of motion which is a limiting case between the oscillatory and Non-Oscillatory motion the *Critical Damping*, and which Originates the Light-velocity $\bar{c}$, [49]
  (b) with Undamped case frequency and Decay to the Equilibrium-Position without oscillation and The Over-Damped-Oscillator Originating the n-times velocity c. What is Quantization of motion and Impedance is analytically referred in [83] A Parallel solution becomes also from the attendant Geometry logic,

The Three Elements $\equiv$ Digits of Material-Geometry are $\rightarrow\{\oplus, [\oplus\leftrightarrow\ominus], \ominus\} \equiv [+,0, -]\leftarrow$The Permutation, *arrangement* of the Two-Elements $P_1^2 = 2$, i.e. are$\rightarrow [\oplus,\ominus] - [\ominus,\oplus]\leftarrow$The Three-Elements in Space need $P_1^3 = 3.(3-1).(3-2) = 6$ Positions and the same for Three-Elements in Anti-Space need $P_1^3 = 3.(3-1).(3-2) = 6$ Positions, and Total Places $\rightarrow P_1^3. P_1^3 = 6 \times 6 = 36$ Positions = A, for Spaces and Anti-Spaces as Impedance and as before for $\log_x x$ and Base x = 10 then $\log_{10} 10 = 10^{10}$ and for the two elements $[\oplus, \ominus]$ theGrowth is $10^{[10]^2} = 10^{20}$ Positions $\equiv$

Distances $\equiv$ r, and since issues $10^{-x} = \frac{1}{10^x}$ then b = 36.10^{-20}, and $\Rightarrow \bar{v} = \frac{F\,\Phi}{A} = [\frac{G\,\Phi}{A}] = [\frac{6,673692.10^{-11}.1,6180339887}{36.10^{-20}.}]$ = 2.9795163. 10^8 m/s i.e. The Ubiquity of Material - Geometry in Electromagnetism is Everywhere.

The Gravity constant g, is the Permeable Path for inner stress σ, to *pass the Material`s Point* a surface $4\pi r^3/3$ and to *expenditure its Energy*.The same exists also to the *Electromagnetic force* which is *associated with a fundamental Property* of matter which is the *Electric - Charge* and which is *a clue to the Ubiquity of Electromagnetism.*
From equation of Gravitation G = k_E g = g. $[k_R\,g_R]$ seems that the two constants are related i.e. *act each other through Local-coefficients or through Field-lines,* called the Medium or Permissible Path which are as σ = $\frac{F}{A} = \frac{2\pi rf}{\Phi} = \frac{w\,r}{\Phi} = \frac{v}{\Phi}$, velocity vector in a Unit-Space Φ.

 It was shown that the first Path is Gravity, g, and Original Field-lines of Force, G, are distorted by these *Charges, Local-coefficients, the Layers* following Newton`s laws. The Original Field-lines terminate at the surface on one side of the Medium, and new field lines originate from the other side of it. It was shown that the Momentum vector,$\overline{\overline{B}}$, is equal to spin S, b*ecause it is following the Stationary - Wave - Nodes - Principle in the Material-Points* creating the minimum quantized Energy which is conserved in lobes.

This Property is extended also to the Number of lobes as well as to, π, number as velocity {v = n.π.c} which is the minimum Number relating Lines and Surfaces. Analogous happens in equation when v = c, and → r = c. From Inner-velocity equation v = w.r = (2π / T).r = $2\pi.f_1$. r, of fundamental frequency f_1, of wavelength λ = c.T = c / f_1, and cave r = n.[λ/2], then r = n.(c /$2f_1$) and v = $2\pi.f_1$. [n. c / $2f_1$] = n.π.c or v = n. π. c ……..(π)

Equation (π) shows that velocities in lobes are, n.π times that of light, following, π, number in circle, i.e. *In Material-Points* exist *velocities multi-times that of light* and the minimum *Surface-constant*, Unit π, or the *Growth of the velocity-vectors* occurs in lobes by following the logarithm laws of Energy-constant c which acts on Space constant π.

From velocity, v = n.π.c, is seen that *light-velocity is the* Quantum of Unit-velocity in Planck`s length. The Why velocity c *and* π, is such in [42-51-63] Kepler`s Laws → Explain How the Planets move around the Sun But NOT the WHY. Newton`s Laws → Explain the WHY by filling this Gap by a Force F = G.m_1.m_2/ r^2. acting instantly between the bodies that are moving around each other But NOT their Nature and NOT the HOW Force is Acting. Markos-Spaces → Explain the WHY by filling the Gap with a Double-Ocean of the Pointy-Spinning- Material-Points, *becoming from the* Stationary- Material-Points, *Photons or Electrons, and from the* moving-Energy-Storages, *the Photons*, which Orientate and Re-orientate the Stationary-Spins, and explain the HOW and the WHY all motions follow the ubiquity of the Electromagnetism, starting from the Primary- Material-Points, *Photons*,which through the Golden-Ratio-frequency-Growth effect and conserve the Whole Natural-World from microcosm to macrocosm.
   (a) In Vacuum $\equiv [10^{-62}$-10^{-35}m], The {Energy-Space-Monad $|\overline{R}| \equiv |AB|$}, Vanishes.
   (b) In Vacuum exists only Pointy vibrating (The circular motion only) between the Opposite Dipole [⊕↻↺⊖].

(c) As Unit-Energy Vectors $\overline{R} = \sigma / \overline{B} \rightarrow$ exists ON {Unit-Space-Monad $|AB| \equiv |\overline{R}| \leftarrow$ And Then $\rightarrow$ {The Energy–Space - Monad $|\overline{R}| \equiv |AB| \equiv$ The Existing Universe}

(d) STPL-Line-Machine is the Physical - Rotor for the Cosmic-Particles origination.

The Gravitational-Force G, Acting in the Beyond-Planck- Cave, and on the light Velocity Vector $\overline{c}$, creates Electron-Charge $\overline{q}_{Electron} = \frac{G}{c\sqrt{2}} = 1,574.10^{-19}$ C. which agrees with that of Coulomb`s charge $\overline{q}$, and the Material-Points $\overline{q}_{Photon} = \frac{G}{\sqrt{2}.f}$, while by effecting on the Whole-Planck-Cave $L_P \equiv e^{i.(-5\pi/2).10}$, creates the Pointy-Gravity Force as this is the Ocean of Spins $\overline{g}$, and which Oriented-Spins, Originate Gravity $\overline{g} = [\downarrow = \circlearrowright]$, and Antigravity - g $= [\uparrow = \circlearrowleft]$ as Electron $\overline{e}$ [72]. The Light-Velocity $\overline{c}$ of Photons becoming from the Action of G on Planck`s Length, when act on a-cave, $r = \frac{h}{c.Z_c} \neq L_P$ then originates the Hydrogen-cave $E = h f_m$, because Angular-Momentum $\overline{B} = \frac{2L}{\overline{w}} = \frac{2L}{2\pi f} = [\frac{2L}{2\pi}].[\frac{1}{f}] = \frac{Constant}{2\pi}[\frac{1}{f_m}] = SPIN$ [70].

The Four Energy-Space Constants in Nature are, [99]

- $L_P \equiv e^{-i.(\frac{\pi}{2}+2k\pi).b} \equiv e^{i.(-5\pi/2).10} \equiv e^{i.(-5\pi/2).10} \equiv \{\sqrt{3}.\pi. 1,616199.10^{-35} m\} \rightarrow$ and is The Planck`s length cave,

- $g \equiv \frac{T^2}{a^3} \equiv \frac{1}{f^2_n.a^3} \equiv 9,8076941 \rightarrow$ *The minimum Granular Quantized Energy, from the gravity frequency* f_g, representing the *Bedding-Quantum-Raw-material* of force G, on all Energy structures.

- $G \equiv \sigma.\Phi^3 \equiv g. k_E \equiv g. [g_L k_L] \equiv [\frac{T^2_P}{a^3}].[g_L k_L] \equiv 9,8076941* 6,8116.10^{-12} \equiv 6,68056.10^{-11} m^3/ N.s^2$ The Pulling and Cohesive Bond, of all the Quantized-Energy-Structures in all Spaces.

- $f_n \equiv \{[S \equiv B_P \equiv EM-R \equiv f_{1=N}, f_2, f_3, f_D,, f_n] \equiv n\frac{(1+\sqrt{5})\sigma}{4\pi r} = \frac{n\sigma.\overline{B}}{8 r^2}$ and from cave

- $\lambda_N = \frac{4\pi.r c}{n\sigma.(1+\sqrt{5})} = \frac{\pi^2.r^4 c}{n.\overline{B}}]\}$, The Amount of Energy, the unit meter of motion, in the Torsional and Resonance-Augmented-Golden-Ratio-Pattern Φ, and $\overline{v} = \overline{c} = \sigma. \Phi = \frac{F}{A} \Phi = [\frac{G \Phi}{A}] = [\frac{6,673692.10^{-11}.1,6180339887}{36.10^{-20}.}] = 2.9985163. 10^8$ m.

4c. The Origination of Electron-charge $\overline{e} \equiv \overline{q}$

From relation $G \equiv g.k_E \equiv g.[g_L k_L] \equiv [\frac{T^2_P}{a^3}].[g_L k_L] = g k$, is seen that Gravitational-Force G, is The Spring-like central-force from a fix Point, *the Source*, on an attached, *Probe*,mass as $\rightarrow F = -k r = -k r.\overline{r}$, as the 1-DOF equation, $\ddot{r} + w^2 r = 0$, where k = The Unit-Spring-Force $\equiv$ [*meter* of area].[*meter* of force $\equiv$ *stress*] $\equiv \pi g \equiv$ with a general solution $r = A sinw_n t + B cosw_n t$, where A, B are constants and evaluated from the initial velocity-conditions which become $r = [\dot{x}(0) / w_n]. sinw_n t + x(0).cosw_n t$.

Above equation represents the Natural-frequency of the Celestial-Structures, and for Planck`s length the only one Primary-Particle occupying the less frequency and Negative-charge, which

is the electron equation and with the solution as, $\frac{w_n}{2\pi} = f_e = \frac{1}{2\pi}\sqrt{\frac{k}{m}}$, or $4\pi^2 f^2_e \cdot m_e = k = \pi g$ and

or $\rightarrow m_e = \frac{g}{4\pi f^2_e}$

From Planck`s min-equation $f_e$ = E / h = [-13,6 x 1,6. $10^{-19}$ = 2,176. $10^{-16}$ Joule] / [6,6262.$10^{-34}$ J.s] = 3, 283998.$10^{16}$ /s,where in Hydrogen atom energy E = h f = -13,6 eV Substituting all the *minimum-meters of Planck`s scale* then, *Electron mass is*, $m_e = \frac{g}{4\pi f^2_e}$ = $\frac{9,808238}{4.\pi.[3,28399.10^{16}]^2}$ = - 7, 2373149. 10^{-30} kg .... (4b)

f_e = 3, 283998.10^{16} /s, and Loop L_e = 2, 3762992.10^{-16} m .....(4c)

Relation $4\pi^2 f^2_e \cdot m_e = k = \pi g$, denotes that Electric-field generated by an electron has both, a component oscillating at the Electron`s - Compton - frequency f_e, which is The Energy-Part, and the Non-oscillating component, the Electric-field-lines as the Energy-Conductor, The Space-Part, which is connecting Gravity with Electric-field.

So, Electron, is the minimum-Energy massive Particle in Hydrogen-cave {-13,6 eV}, becoming from Material-Point In Planck`s-length, *minimum-cave*, occupying the less Unit frequency in Planck`s – Length, with Negative-charge {f_e= 3,283998.10^{16} /s}.

Because of the Negative-Energy in Hydrogen-cave, and the less-Negative Energy of Rims which consist the Plane-traces-Conductors or the Paths in-where electrons roll so Energy Rims consist the Energy-minimum-Paths in Hydrogen-cave-Potentials, as $E_n - E_{n-1} = [m_e \cdot v^2].[2n-1]$, where the electrons, the Electric–Charges, roll.

Electron Charge $\bar{q}$ Becomes from Magnetic Field M which creates the Electric-Field E, which is acting on Charge q, and the acting Force per second creates Work which is conserved and coincide with the Planck`s constant h. This is because h → J s = N m s = Power,where from, *Energy = Power* x *Time,* issues the Beyond Planck`s length L_P, and The Voltage V is → $\bar{q} \equiv \frac{K_E}{V_P =1} = \frac{m_e c^2}{2} = \frac{g c^2}{8\pi f^2.1}$, and $\bar{V} \equiv V_P \equiv \frac{c.Charge}{Total-Energy= h} = \frac{c.\bar{q}}{h}$...(1)

Using the two Energy-equations for *Linear-motion* $\rightarrow f_n = \frac{1}{2\pi}\sqrt[2]{\frac{k}{m}}$ and *Orbital-motion* $a = \sqrt[3]{\frac{1}{k.f^2}}$, for Unit-Energy-Space-frequency k = g, a = π, then → g.f ^{2}. π ^{3} = 1...(2) Frequency $f_n = \sqrt[2]{\frac{1}{g.\pi^3}} = \sqrt[2]{\frac{1}{9,808238.\pi^3}}$ =1,8133418.10^{-3}, i.e. The Unit-Charge-Cave, $\bar{q}$ into Hydrogen cave [a =1,82043047.10^{-12}m].[1,813342.10^{-3}/s] = 3,3010625.10^{-15} C. From equations Charge and Voltage is the *Self-Growing* Property of frequency f_n in Material-Point, therefore and for Hydrogen-cave is equal to → $\bar{q}.\Phi$, Because Gravitational Force is equal to → the Geometric-Resultant of light-velocity c, acting on Electron-Unit-Charge $\bar{q}$ ← or, G = c $\sqrt{2}$ $\bar{q}$, then Electron-Charge is, $\bar{q} = \frac{G}{c\sqrt{2}} = \frac{6,680561.10^{-11}}{1,41429.[2,9979346.10^8]}$ = 1,58.10^{-19} Coulomb, the known Coulomb`s charge quantity, From $g_L, k_L$ Universal constants the Newton`s Gravitational constant Force is, G $\equiv$

$g.k_E \equiv g.[g_L \, k_L] \equiv [\frac{T^2_P}{a^3}].[g_L \, k_L] \equiv 9,808238 * 6,8116.10^{-12} \equiv 6,68056.10^{-11} \frac{m^3}{Ns^2}$. The in depth Position of electrons allows to the Work Produced in Prior Phase-Areas as Golden Ratio Pattern, to be Stored in the Next. Energy = motion / $T \equiv (\frac{v}{2\pi r})$. $[\sigma + \sigma \, \Phi] = \bar{v}. [\frac{\sigma}{2\pi r} + \frac{\sigma\Phi}{2\pi r}] \equiv \bar{v}. [.\boxed{\bar{f}_n} + f_n] \equiv$ Moving - Storage $\rightarrow [\bar{v}. \boxed{\bar{f}_n}] \leftarrow$ + Moving-Frequency. $\rightarrow [\bar{v}.f_n] \leftarrow \equiv$ Material-Point i.e. The Energy produced in Photon-Cave is consisted of Two-moving-Storages, that travel as Wave $[\bar{v}.f_n]$ $\rightarrow [\bar{v}. \boxed{\bar{f}_n}] \rightarrow [\bar{v} = \bar{c} = \lambda\frac{f}{\Phi}] \rightarrow [S \equiv$ EM-R $\equiv f_{1=N}, \, f_2, f_3, f_D,,f_n = w^2]$, and as Particle $\rightarrow [f_1 = (E^2+H^2) =$ $n \frac{(1+\sqrt{5})\sigma}{2\pi r} = \frac{n\bar{B}}{\pi^2 r^4}] \rightarrow \{W \equiv$ EM-R $\equiv [\epsilon E^2 + \mu B^2] = 2.\lambda c.\sin.2\varphi\}$ and is The Duality of an Energy-Storage $S \equiv \{\boxed{[\oplus \leftarrow r \rightarrow \ominus]}$ + Motion M. [87-89]

5c. The Origination of Hydrogen Cave H [99]

From Kepler third law, the Energy-Closed-Space equation and Newton`s Laws of motion Constant $k = v^2. r = (w \, r)^2.r = [\frac{2\pi}{T} r]^2. r = \frac{4\pi^2 r^2}{T^2}. r = \frac{4\pi^2 r^3}{T^2} = 4\pi^2.\frac{r^3}{T^2} = 4\pi^2.r^3.f^2_p$ ....(k) Because (k) is constant, $r^3.f^2_p$, is also a Constant multiplication of cave, r, and the frequency f, and the Work $\equiv$ motion are conserved in cave, r, as the, n, frequencies $f_N = n \frac{(1+\sqrt{5})\sigma}{2\pi r} = \frac{nB}{\pi^2 r4}$, and for a Damping-cave $\rightarrow r(t) = r(t + w) \leftarrow$ as Planck`s scale is with min-Damping = 1 and Unit-Energy-Quantity W_u, (the critical-energy-unit in min, r), is this Unit-Stress-Gravity g, as $k = E = \frac{T^2}{a^3} = g = \frac{1}{f^2.a^3}$, i.e. $\rightarrow$ Stress $\bar{g}$, *when is entering into the minimum cave,* a, of a minimum Surface, *then from the Period of Rotation* T on the Perimeter, *is created in Surface the minimum Quantity of Energy-cave* and is the Hydrogen-Atom, where $gf^2 \equiv$ the Energy-Part embodied with stress $\bar{g}$, and the cave a^3, is the Space-Part, in 3-DOF Space as $\rightarrow T^2 = g \, a^3 = 9,808238.[2,1145016. 10^{-11}]^3 = 9,$ 2728158.10^{-32} s, and Period T = $3,04513.10^{-16}$ s, or frequency f = $3,2839982.10^{15}$ / s. From equation E = h f = $6.62607.10^{-34} . 3,2839982.10^{15} = 2,175999. 10^{-18}$ J / $(1,6022. 10^{-19}) =$ 13,59999 eV Above Quantized Energy *of* 13,6 eV, *corresponds to the Hydrogen-Atom-Cave.*

It was shown that *in Conservative Systems* of a Central-Force, the Total energy E is conserved and at Periapsis, energy $E = \frac{G.Mm}{2 \, a}$ and $e = \sqrt{1 + 2EL^2/G^2M^2m^3}$ and for e = 0 then $\rightarrow E = - \frac{G^2M^2 m^3}{2 \, L^2}$, i.e. Energy is always Negative.

Hydrogen cave constant is $k = E = \frac{T^2}{a^3} = g = [\frac{4\pi^2}{GM}]$ therefore $GM = \frac{4\pi^2a}{g}$ and from Newton Total-energy $E = - \frac{GM \, m}{2 \, a}$, Rotational-Momentum $L = \sqrt{(1 - e^2). GMm^2. a}$ Eccentricity e = 0, G Mm = - 2a.E, and then $\rightarrow L^2 = GMm^2.a = - 2aE[a] = - 2a^2E$. i.e. Equation $L^2 = - 2a^2.E$, denotes that Angular-Momentum L, in Orbit - Rims is always Negative and equal to, L = - a $\sqrt{2. aE}$.

So, Hydrogen-Atom, is the minimum-Energy-cave In Planck`s-Length, occupying the minimum Negative-Energy in Rims $\equiv$ Caves, *the Space,* where Quantum-Energy-Rims are the Plane Traces-Conductors in where can roll the $\ominus$ charged Electrons. In Hydrogen-cave, the Resonance Frequency of an Electron $\ominus$, and a Proton $\oplus$, happens from the Stationary Unit-Cave of a System of Kepler second Planetary-law as equation, $4 \pi^2 m f^2_o = k$, and from constant

law of Areas $1 = k.f^2{}_o\ a^3$. Their common Constant-Energy k, is $\rightarrow$ k = 4 π^2 m $f^2{}_p = \frac{1}{f^2{}_p\ a^3}$ or,

$f^4{}_p = \frac{1}{4\pi^2 ma^3}$ and $f_p = \sqrt[4]{\frac{1}{4\pi^2 m.a^3}}$.

A loop in Planck`s length 2a = L_P = $\pi.1,616199.10^{-35}$ m with frequency f = $\frac{c}{\lambda}$, where then issues $f^4{}_p = \frac{1}{4\pi^2 ma^3} = [\frac{c}{\lambda}]^4 = [\frac{1}{\lambda}]^4.\{c^4 = \frac{1}{[4\pi a^3]m\pi a}\}$, and for the Unit Intensity I = $\frac{Energy}{Area} = \frac{E = hf}{A = 4\pi a^3} = \frac{1KW}{A}$ = $\frac{1}{[4\pi a^3]} = \frac{1}{\lambda^4}\{mc^4.\pi a\} = \frac{1}{\lambda^4}\{1\}.80,760865.10^{32}.(3,14).0,8081.10^{-35}$ =0,5865. $\{\frac{1}{\lambda^4}\}$, and E-Intension is $\rightarrow$ I = 0,5865. $\{\frac{1}{\lambda^4}\}$ $\leftarrow$ or, is the Rayleigh Scattering, i.e. The Quanta of Energy, Passing through a Unit-Surface or Volume, which becomes from the Kepler`s Second and third law Mechanism, is Inversely Proportional to the fourth Power of the wavelength λ.

In Outer Electromagnetic fields, frequency, w, is that of inner motion $\rightarrow$ w = $\frac{2\pi}{T}$ = $2\pi.f_N \equiv$ $[\frac{1+\sqrt{5}}{2}]\frac{\sigma}{2\pi r} = \frac{\sigma.\Phi}{r}$, which continuous to follow the *Growth-Golden-Ratio-Pattern*. Photon occupies such the Property of Material Point as the Growth-Pattern. With this way Photon`s frequency $\rightarrow$ $f_P$ = 1 / $T_P$, Kicks-Start everything found on its-way. From the Resonance constant k = $\frac{1}{f^2{}_n.a^3}$ $\rightarrow$ or 1 = $k.f^2{}_n. a^3$ $\leftarrow$ and from Kepler`s laws and Newton`s Lagrange laws for Orbits, the cave-Semi-major-axis is as, a = $\sqrt[3]{T^2/k}$ = $\sqrt[3]{\frac{1}{g.f^2}}$ = $\sqrt[3]{\frac{4.\pi^2.r^2}{g.\sigma^2.\Phi^2}}$ = $\sqrt[3]{\frac{[4\pi^2].x\ r^2}{[g.\Phi^2].x\ \sigma^2}}$, and f_R = $\frac{w_R}{2\pi}$ = $\sqrt[2]{\frac{k=1}{g.a^3}}$ = $\sqrt[2]{\frac{\sigma}{g.\Phi^2.a^3}}$ $\equiv$ $\sqrt{\frac{k}{md}}$ eV …(a) i.e. It is the Resonance-frequency f_R , in Photons loop, and which is the Energy-Space Quanta, following the Growth-Golden Ratio-Pattern, which travels in all Cosmos.

(a) It was shown that when two Photons strike each other, $\vec{c}$ = $\overleftarrow{c}$, or reflect on a wall, then c = 0 and so their fundamental frequency f_1 = n.$[\frac{\bar{v}}{2r}]$x$[\frac{1}{4}]$ = n.$[\frac{\bar{v}}{8.r}]$ which for n = $[\frac{8.\pi rc}{v.\lambda}]$ increases to $\frac{\lambda}{c}$, therefore for n = N.$[\frac{8.\pi rc}{v.\lambda}]$ = N.$|\frac{c}{\lambda}|$ and for N $\rightarrow$ ∞ then f_1 = E / h =∞…(b). In Dual Photon $\bar{v}$ $[\frac{\sigma\Phi}{2\pi r} + \frac{\sigma}{2\pi r}]$ $\equiv$ $\bar{v}. [\boxed{\bar{f}_n} + f_n]$, Colours are the Still-Sub-Units of Storage $[\bar{v}. \boxed{\bar{f}_n}]$, and exist as Frequencies, Violet, Blue, Green, which Stabilize with their Complementary colors Yellow, Orange, Red, of wavelength d = $\lambda \rightarrow \lambda_{min} \approx \lambda_{max}$ = 3.10^{-7}m $\approx 3.\sqrt{3}.10^{-7}$m.

(b) The Quanta of Energy, Passing through a Unit-Surface or Volume is Inversely Proportional to the fourth Power of the wavelength λ as I = 0,5865. $\{\frac{1}{\lambda^4}\}$. When f_{BE} = E / h = ∞ then the Energy-Intension Increases and the wavelength λ Decreases and for f_{BE} = ∞ then λ = 0.

This is what happens in Black-Holes where d = λ = 0, and in where E = f_{BE} = ∞. Hydrogen-Energy E = h. f_P = [6,6262. 10^{-34} J.s]. [3,28393. 10^{15} / s] = 2,176. 10^{-18} J and in eV $\rightarrow$ [2,176.10^{-18}] / [1,6.10^{-19}] = 13,6 eV, Above Quantity of Energy consist the Hydrogen minimum Energy-Rim, becoming from equation a = $\sqrt[3]{T^2/g}$ = $\sqrt[3]{\frac{[3,04513.10^{-16}]^2}{9,80769411}}$ = $2,1145016.10^{-11}$ m, for Unit energy cave. From Angular-Momentum B = r.mv = r $[\frac{\pi rv}{2}]$ v = $\frac{\pi r^2}{2}$ v^2 = $\frac{\pi r^2}{2}v^2$ = $\frac{\pi r^3}{2}$ $[n.\pi.c]^2$ =

$\frac{\pi^3 r^3}{2} c^2$, or Black-Hole-Energy $\rightarrow B_E = 2.\pi^5.r^3.f^2 = (\pi r)^3.w^2 \leftarrow$ i.e. Velocity in Black-Holes is Related to Cave, r^3, and Energy w^2 times of light velocity.
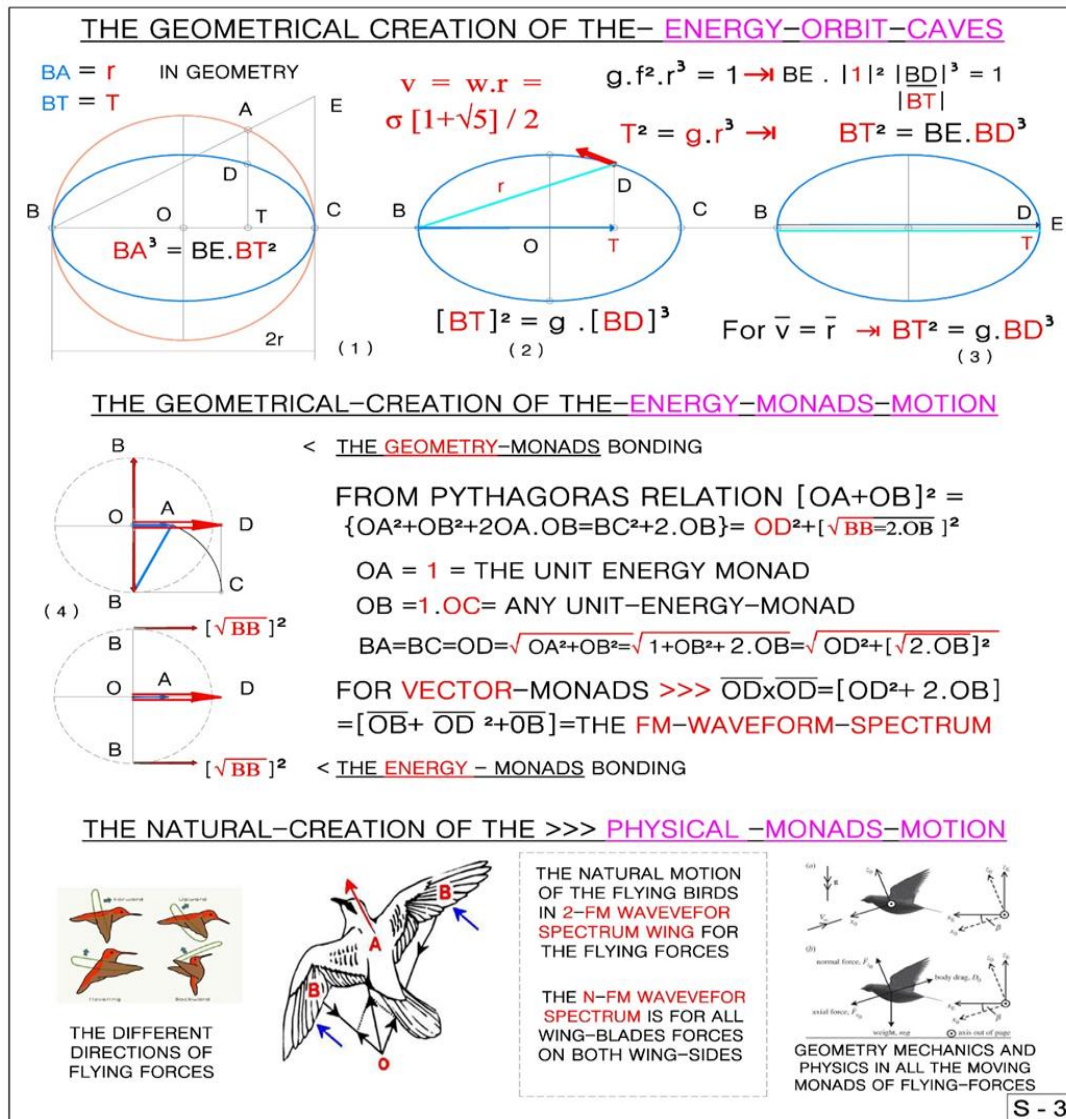

Figure 9: The Periodic motion in Caves follows Material - Geometry rules.

In (1). Is shown the Geometrical Expose of, Dynamic-Space-Energy relation $g.r^3.f^2{}_p = 1$

In (2). Is shown the Mechanical Impress of the, Orbit-Space-Energy relation $g.r^3.f^2{}_p = 1$

In (3). Is shown the Extreme Design of the, Dynamic-Space-Energy relation $g.r^3.f^2{}_p = 1$

In (4). Is shown the Geometrical Creation of The Energy-monads-motion & The Physical Monads - motion from their Unit - relation $g.r^3.f^2{}_p = 1$

The Origination of Anti – Gravity - Stress - g
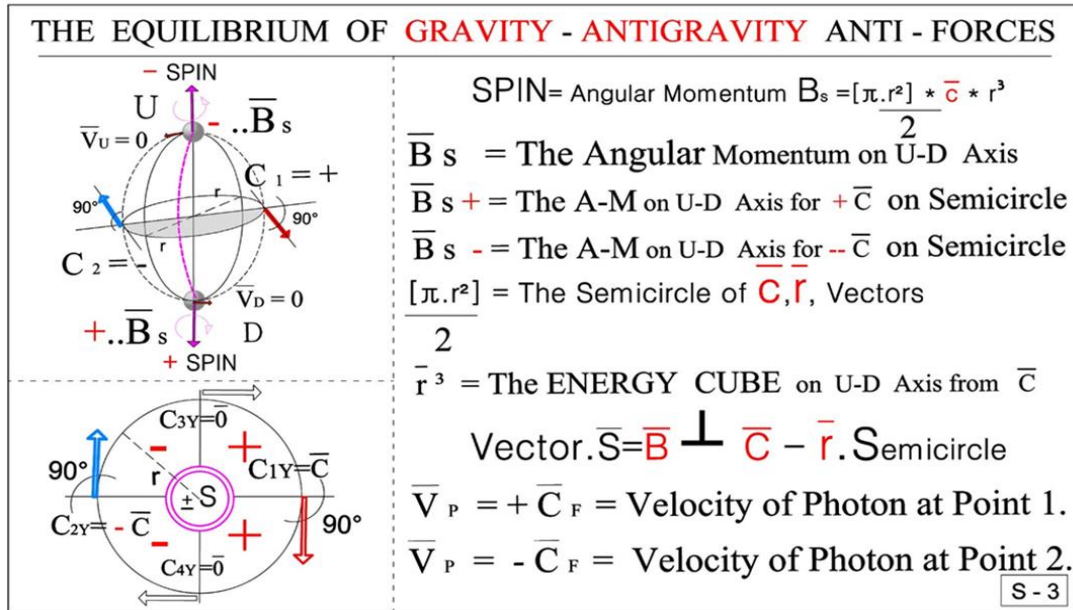
6c. The Origination & The Nature of Gravity g

Figure 10: The Stability of ±SPIN as an Electromagnetic Wave of Two frequencies,0, c.

From relation Angular Velocity c = w r = $2\pi f_n.r = 2\pi r.f_n = \sigma \Phi$. Since light-velocity is created from G beyond the Planck`s length r_P =1,61626.10^{-35} m, therefore issues c = w r = w r_P = 2π r_P .$f_n = \sigma \Phi$, and from the light-velocity Properties becomes,

(a) The light velocity c is constant. Since c is constant then is analyzed to, (c_x, c_y) in any two directions x, y where x $\perp$ y and y to be the gravity direction on where gravity is acting. In figure (8) are seen the 4-Point Positions, at where Velocity Phase changes and the Work done in each Phase of Photon`s inner motion. The 4-Phases correspond to the Wavelength. λ, as λ / 4. in distance with 90° = $\frac{\pi}{2}$ to be the change of Phase. This means that the Produced Work in the Prior Phase-Area is as the Golden-Ratio Pattern which is Stored in the Next and Perpendicular Phase-Area. The Light velocity $\bar{c}$, changes Phase every 90° and the created Work {W = c_y x [Quarter circle 1-O-4]} is Symmetrically Stored from 0° → 90° alternately +, -, -, +, in [Quarter circle 1-O-4] in the [Quarter circle 4-O-2] into [Quarter circle 2-O-3] into [Quarter circle 3-O-1] The Momentum ≡ Spin ≡$\bar{B}$≡ r m v = [$\frac{\pi.r^2}{4}$].$\bar{c}$ x $\bar{r}$ where ± [$\frac{\pi.r^2}{4}$] = The Quarter circle. The Quarter circle, + +, consist the + Spin ≡ $\bar{B}$ which is the Gravity Force, and the Quarter circle, - -, consist the -Spin ≡ $\bar{B}$ which is the Gravity Force from Total, +, -,-,+, When r → 0 Or when $\bar{c}$ doesn`t act on the Quarter circle then happens Black-Hole. In [108] is determined the when Newton's Gravitational Force $\bar{G}$, Stops Acting thrusting, on The Light velocity Vector $\bar{c}$, and happen the Black-Holes.

(b) The Dual Property of the Simultaneously existing Spin as Electric and as Magnetic Field in wavelengths, λ_x, λ_y, as Effective Range, is thrusted through the Light velocity $\bar{c}$, and finally is from the Newton's Gravitational Force $\bar{G}$. In Planck`s length r_P =1,616255.10^{-35} m the created Work from $\bar{c}$, on 1-4 Position is stored in the [1-O-4] Quarter-circle surface and at Phase-4 where c = 0 is then stored in the [4-O-2] Quarter circle surface. At Phase-2 where $\bar{c}$ = - $\bar{c}$ motion is stored in the [2-O-3] Quarter circle surface, and At Phase-3 where $\bar{c}$ = 0 motion is stored in the [3-O-1] Quarter circle

surface, i.e. is alternately repeated the $+ [\frac{\pi.r^2}{4}]$ =The +Quarter circle [1-O-4], and the $- [\frac{\pi.r^2}{4}]$ =The - Quarter circle [4-O-2] both in the same Plane-surface [1-4-2-3] of motion. The Surface [1 – 4 – 2 – 3] is $\perp$ on the SPIN Axis $\to$ U – D. From $f_n = \frac{\sigma}{2\pi r} \Phi$ and $\overline{c} = \overline{w}.r = 2\pi f_n.r = 2\pi r.f_n = \sigma \Phi$, are frequencies, 0, c, relation. At c = 0 exist minima or maxima where is the change of two Energy-Semicircles.

(c) The origination of Spin in cave H. From Orbit vibration $f_n = \frac{(1+\sqrt{5})\sigma}{4\pi r} = \frac{\sigma}{2\pi r} \Phi$ and from relation $g.a^3.f^2_n = 1$, $f^2_n = \frac{\sigma^2}{4\pi^2 r^2} \Phi^2 = = \frac{1}{g.a^3}$ then $g.a^3.\Phi^2 = \frac{4\pi^2 a^2}{\sigma^2}$, or 1). $a = \frac{1}{g} [\frac{2\pi}{\sigma \Phi}]^2$, and from Work $W = 2E = B w = J.w^2$, or $2E = 2\pi.f$ and $\overline{B}f = \frac{E}{\pi}$ then 2). The Energy in Planck-scale-cave $2E = \overline{B}f_n = [\frac{(1+\sqrt{5})\sigma}{4\pi r}].\overline{B} = [\frac{\sigma}{2\pi r}].\overline{B} \Phi$, or $E = [\Phi \frac{\sigma}{4\pi r}].\overline{B}$ i.e. The Energy in Planck-cave-Particles is Dependent on their Spin only, and for Electron $r = a_e \to E = [\Phi \frac{\sigma}{4\pi.r}].\overline{B}$ $= 1,6180339[\frac{1}{4\pi.1,6840307.10^{-17}}]x \times 2,845976. 10^{-17} = \frac{21,76.10^{-19}}{1,6.10^{19}.} = 13,6$ eV, which is the min-Voltage in Hydrogen cave.

(d) The Angular Momentum in cave $\overline{c}$ - r, In cave, r, The Energy-Vector $\overline{r}$ is Positive for $\overrightarrow{O3}$, $\overrightarrow{O1}$, $\overrightarrow{O4}$, Directions while, The Energy-Vector $\overline{r}$ is Negative for $\overrightarrow{O3}$, $\overrightarrow{O2}$, $\overrightarrow{O4}$, Directions. Since Total-Energy $L = B w = \frac{J.w}{2} w = \frac{J.w^2}{2}$ then $2L = J.w^2$, then Angular Momentum relation $\overline{B} = r.mv = r [\frac{\pi.r^4}{2}]. 2\pi f r = \pi^2.r^6.f.$ and $B = J w$ i.e. Angular Momentum $\overline{B} = r m v = \frac{J.w}{2} = [\frac{\pi.r^4}{4}] \frac{c}{r} = [\frac{\pi.r^3}{4}].\overline{c} = [\frac{\pi.r^2}{4}].\overline{c} \times \overline{r}$......(a) For $\overline{r} = \pm \overline{r}$, then $+ \overline{B} = +$ Gravity – Spin $= + [\frac{\pi.r^2}{4}].\overline{c} \times \overline{r}$, The + Gravity Force - $\overline{B} = -$ Gravity – Spin $= - [\frac{\pi.r^2}{4}].\overline{c} \times \overline{r}$, The -Antigravity Force From Momentum relation $\overline{B} = m r v = m r^2 w = m r^2 (2\pi f) = \frac{J.w}{2} = [\frac{\pi r^4}{2}].[2\pi f]$ then Spin $S \equiv$ Angular-Momentum $\overline{B} \equiv \overline{S} = \frac{J.w}{2} = \frac{\pi r^4}{4} [2\pi f] = \pi^2.r^4.[f] = \frac{\pi.r^3 \Phi.\sigma}{2} \equiv \frac{[1+\sqrt{5}].\sigma.\pi.r^3}{4} = \frac{\pi r^3 \sigma.\Phi}{2}$..(b) For $\overline{r} = \pm \overline{r}$, then $+ \overline{S} = +$ Gravity – Spin $= + \frac{\pi.r^3 \sigma.\Phi}{2}$, The Gravity Spin ie $- \overline{S} = -$ Gravity – Spin $= - \frac{\pi r^3 \sigma.\Phi}{2}$, The Antigravity Spin

From Spin-Momentum relation $S = \overline{B} = \frac{E}{w} = \frac{E}{2\pi f} = \frac{Er}{\sigma \Phi} = \frac{rG}{\sigma \Phi}$, and $\overline{B}^2 = \frac{J^2 \sigma^2}{r^2} \Phi^2$, so $\to [\overline{B}]^2 = [\frac{\Phi J \sigma}{r}]^2 \leftarrow$ while from Gravity-force $F_G \equiv m_G g = g.\nabla[\sigma c].r = m_G \frac{c^2}{r} = Jw^2.g_G = \frac{v^2}{r}. [\frac{\pi r^4}{2}] \frac{v^2}{r^2} = \frac{\pi r v^4}{2}$, and Gravity-Acceleration $\pm g_G = [\frac{\pi r v^4}{2}]. e^3$, *Geometry Growth* $[\frac{\pi r v^4}{2}] = [\frac{3,1415926([\sqrt{5}+1].\sqrt[4]{2}.10^{-35}).(2,99793458.10^8)^4}{2}]. e^3 = 6,044981. 10^{-35} . 80,773378. 10^{32} . 20,085536 = g_G = \pm 9,8076925$. i.e. Gravity $+ g_G = + 9,8076925 = \frac{\partial r \overline{c}}{\partial t} = + \overline{S}$, and Antigravity$= - g_G = - 9,8076925 = \frac{\partial r \overline{c}}{\partial t} = - \overline{S}$ are the Two Opposite Forces as Spin and for the Stability of the Spin $- \overline{S}$, Equilibrium. For c = 0 exist minima or maxima and thus SPIN is equal to the Negative Gradient of the Potential Energy in the two Interchange Energy Semi circles. *Centripetal force* Originates the Two-Momentum $\pm \overline{w}$, $\overline{B} = r m v = [\frac{\pi r^3 \sigma.\Phi}{2}] \equiv$ Gravity – Antigravity – Spin.

7c. The Stability of Equilibrium

In the Conservative System, of cave $\bar{c}$ - r, the Total Energy E_T remains constant and the Total-Energy is $E_T = E_K + E_U = \frac{1}{2} [\dot{x}]^2 + U(x)$ = constant .....(1) where E_K= The Kinetic Energy and E_U = The Potential Energy. For y = $\dot{x}$ then, y = $\dot{x}$ =$\pm \sqrt{2.[E-U(x)]}$ ...(2)

The differential equation of motion in cave $\bar{c}$ - r, for Conservative Systems is $\ddot{x}$ = f(x) and Because $\ddot{x} = \dot{x}$ (d$\dot{x}$ /dx) then $\dot{x}$. d$\dot{x}$ = f(x)dx =0..(3) By Integrating then $\frac{\dot{x}^2}{2}$ - $\int_0^x f(x)dx$ = E, and by comparison to Priors then → U(x) = - $\int_0^x f(x)dx$ or f(x) = - $\frac{dU}{dx}$ = $\ddot{x}$ ...(4)

i.e. For the Conservative System, of cave $\bar{c}$ - r, the force = $\bar{B}$ = r m $\bar{c}$ = $\frac{J.w^2}{2}$ = $[\frac{\pi.r^2}{2}].\bar{c}^2$ is Equal to the Negative Gradient of the Potential Energy Into 2-Energy Semi-circles. For y = $\dot{x}$ then (3) becomes $\frac{dy}{dx}$ = $\frac{f(x)}{y}$ = Φ (x, y), and the Singular Points correspond to f (x) = 0, and y = $\dot{x}$ = 0 and hence are the Equilibrium Points. For every Point x, y in the Phase-Plane for which Φ (x y) is not indeterminate exists a unique slope of the trajectory.

When the velocity vector is at Points 1,2 then y = 0 and f(x, y) = C ≠ 0 then the Slope of the trajectory is infinite and angle φ = 90°. Since motion in cave $\bar{c}$ - r, is a single-DOF oscillator, then motion equation is $\ddot{x} + w^2 x = 0$.Equation indicates that at the Equilibrium Singular Points, 3, 4, the Slope of the Potential Energy curve U(x) must be zero, meaning minima or maxima, and which is the ± change of direction for the Four Energy- Quarter circles [1-O-4], [4-O-2], [2-O-3], [3-O-1] in (c_x, c_y) where $\overline{c_y}$ = $\bar{c}$ = Spin Direction,

Conclusions

1. From A-Momentum $\bar{B}$ = r m $\bar{c}$ = $\frac{J.w^2}{2}$ = $\frac{1}{2}[\dot{x}]^2$ +U(x) = $\frac{1}{2}[y]^2 + \frac{1}{2} k x^2$ = constant, then Spin S ≡ $\bar{B}$ = $\frac{1}{2}[y]^2 + \frac{1}{2} k x^2$ = $[y]^2 + w^2 x^2$ = C = Constant, or → $y^2 + w^2 x^2$ = C ←....(a) Equation (a) is a series of Ellipses determined by C, and for w = 1 y/w = y then reduce to circles $y^2 + x^2$ = C, in $\bar{c}$ - r Plane and Perpendicular to S since, [$\bar{c}$ - r] $\perp$ $\bar{S}$.

2. In the Conservative System of cave $\bar{c}$ - r, where $\bar{c}$ = Light-Velocity = 2.9985163. 10^8 m/s, r = Planck`s -Length = $\sqrt[4]{2}.10^{-35}$ m, motion in cave is an single-DOF oscillator as equation $\ddot{x} + w^2 x = 0$. Equation of motion is a circle on where exist the 2-Singular Points 3, 4, meaning minima or maxima, where issues $\frac{dy}{dx}$ = $\frac{f(x)}{y}$ = Φ (x, y), and are in theMode-Shapes at the Points of Equilibrium. At Singular Points 3, 4, Velocity $\overline{c_y}$ = $\bar{c}$ = 0 and Spin $\bar{S}$ = Gravity = 0, and since $\frac{dy}{dx}$ < 0, then Spin $\bar{S}$ changes Direction becoming - $\bar{S}$ = Antigravity = 0, meaning that at Singular Points Gravity & Antigravity are Zero.

3. 3...At Point 1, Velocity $\overline{c_y}$ = + $\bar{c}$ because of $\overline{c_y}$, +↓ direction and corresponds the Spin $\bar{S}$ = Gravity = $\bar{B}$ = r m $\bar{c}$ which is Constant and equal to Work = $\overline{c_y}$ x [Quarter circle 1-O-4] At Point 2, Velocity $\overline{c_y}$ = - $\bar{c}$ because of $\overline{c_y}$, -↑ direction and corresponds the Spin $\bar{S}$ = Gravity = $\bar{B}$ = r m $\bar{c}$ which is Constant and equal to Work = $\overline{c_y}$ x [Quarter circle 2-O-3] where the [Semicircle 4-1-3] = + $\bar{B}$ ≡The Gravity, and [Semicircle 4-2-3] $\equiv$ - $\bar{B}$ = The Antigravity.The produced Work from the eternal Rotation is store in the Semicircles as,

(+) Total Work = [Semicircle 4-1-3] = + $\overline{S}$ and (-) Total Work =[Semicircle 4-2-3] = - $\overline{S}$

4. From Newton`s law of Universal Gravitation m r. $\overline{w}^2 = G \frac{m.M}{r^2}$, and when m = 1, issues

   $\overline{w}^2 = \frac{G.M}{r^3}$, and B = J w, therefore angular velocity $\overline{w} = \pm \sqrt[2]{\frac{GM}{r^3}} = \sqrt[2]{\frac{G\pi.r4}{2.r^3}} = \sqrt[2]{\frac{\pi.Gr}{2}}$. This Angular-momentum *is identical with Spin* which is trapped in caves`s loops which are in Phase with each other. The amplitude of Oscillation varies from Zero at Nodes to maxima at Antinodes.Since Frequency $\equiv f_n = (\frac{n\sigma}{8\,r^2}).\overline{B}$, so Energy-caves are Stationary Wave-Fringes

5. The Total-Energy, E_T, in Caves, [70]

   (a) → In any Moving System $E_T = E_R + E_K = \frac{\pi c^2}{8} r^3 + \frac{1}{2} m.v^2 = 3{,}535.10^{16}.\ r^3 + \frac{1}{2} m.v^2$,

   (b) → Light-Velocity $\overline{c}$ of Photons becomes from the Action of G on Plancks Length $L_P = r_P = 1{,}6162.10^{-35}$ m cave r, and when cave $r = \frac{h}{c.Z_c} \neq L_P$ originates Hydrogen-cave. It is shown later that when the G action Area - Resistance $\equiv$ Gravitational-Impedance $Z_{G-I} = 6{,}344907.10^{-35}$ Kg differs for any reason then Black-Holes happen.

   (c) → Euler`s Rotating Rigid Body.The D-Work is W = 2L = $\overline{B}. \overline{w}$ = J.$w^2 \equiv$ h. f_n , and for m mass W = h f_m,Angular-Momentum $\overline{B} = \frac{2L}{\overline{w}} = \frac{2L}{2\pi f} = [\frac{2L}{2\pi}].[\frac{1}{f}] = \frac{Constant}{2\pi}[\frac{1}{f_m}]$ = SPIN

   (d) → In Central-motion, Kepler constant k = $4\pi^2. r^3. f_P^2$, or 1 = $[\frac{4\pi^2}{k}] r^3. f_P^2$, 1 = c. $r^3. f_P^2$ where for → r → 0 then $f_P \to \infty$ ←, a case of a Black-Hole in any Central motion.

   (e) →The Vibrations in Orbit-Systems are as → W = $4\pi^2.[\frac{r^3}{T^2}]. \overline{n} = 4\pi^2. r^3. f^2_P. \overline{n}$ ←

   (f) → In [PNS] Neutral Space, Dumping force is F_d = C. $\dot{r}$ = ± C_o .w. $[\sqrt{A^2 - r^2}]$ and F_d^2 / [C_o .w. A] ^{2} + r^2 / A^2 = 1, i.e. Energy $\equiv$ motion is mapped as an Ellipse with axis, F_d , x, and *Energy Dissipated Per - Cycle*, the Area enclosed by ellipse.

   (g) → The Energy in [PNS], is either as momentum (mv) or as Rotational Momentum (Λ = r.mv). Velocity $\dot{x}$, in form $\dot{x}$ = w A cos.(wt - θ) = ± wA.$[\sqrt{1 - \sin^2(wt - \theta)}]$ = ± w. $[\sqrt{A^2 - x^2}]$ where momentum relation $\overline{B}$ = m r v = m r^2 w = m r^2 (2πf) = $\frac{J.w}{2} = [\frac{\pi r^4}{4}].[2\pi f]$ = $\frac{\pi^2 r^4 f}{2}$,and Mass of Elementary-Particles is m = $\frac{\pi^2 r^4 f}{2w.r^2} = \frac{\pi^2 r^3}{2v} f = \frac{\pi^1 r^2}{4}$, or The repeated Quarter circle $[\frac{\pi.r^2}{4}]$ Surface of the ± Spin Dual Property In Planck`s length and area, $A_{QC} = [\frac{\pi.r^2}{4}] = \frac{3{,}1415926.(\sqrt[4]{2}.10^{-35})^2}{4} = 1{,}1107206.10^{-70}$ m^2. Since issues the monad of mass to be $[\frac{eV}{c^2}] = 1{,}782662.10^{-36}$ Kg, then Energy *Dissipated Per - A_{QC}* = E_{QC} = $(1{,}1107206.10^{-70}$ m^2/ 1,782662. 10^{-36} = $6{,}230715.\ 10^{-35}$ Kg, Or from the G action Area - Resistance $\equiv$ Gravitational-Impedance Z_{IQC} , exists $Z_{IQC} = \sqrt{2}c^3 A_{QC}$ / G, and m $_{PNS} \equiv Z_{IQC} = \sqrt{2}.c^3 A_{QC}$ / G = $\frac{1{,}4143.(27.10"24)1{,}1107206.10^{-70}}{6{,}680056.10^{-11}}$ = $6{,}344907.10^{-35}$ Kg. The result agree with Prior because in [PNS] Dipole of Space exists the Impedance Z_{IQC} , which Doesn`t exist in [MFMF] Space. [22-26]

   (h) → In [MFMF] Space, Work = motion = Energy is zero as W = $\int_B^A P.\,ds$= 0, and this because ds = $\vec{v}$ = 0 and Time is not existing and $\vec{v}$ = 0 as relation, s = $\vec{v}$.T. Each Unit $\overrightarrow{AB}$ = ds > 0 exists by this Inner Impulse (P) and so $P_A + P_B$ = 0. i.e. The Position and

Dimension of all Points which are connected across Universe and that of Spaces exists *because of this Static Inner Impulse*, on the contrary should be one Point only

Or, Primary Point A = Black Hole → ds = 0 and P = ∞. Since Impulse is ∞ then may be → Vacuum, Momentum or Potential or Induced Potential and it is a Type of Effect, to Push the nature → (Impulse ≡ Motion ≡ Energy) ←

8c. The Nature of Antigravity (- g)

From Mechanics in case that, *in an Axisymmetric Rotating Body, with constant Angular-Velocity,* w, *the moment of Inertia,* $J_x = J_y$, *is equal about the two of the three Principal axis*, *and then*,

1. The Angular – velocity - vector, $\overline{w}$, describes the Ellipsoid of Angular Velocity and its nib describes a Cone of which Plane-Base is Fixed *Simultaneously*,
2. The Angular-Momentum, $\overline{B}$, describes the Ellipsoid of Angular-Momentum and its nib describes a Cone also of which Plane-Base is also Fixed.
3. The Nib of Angular - velocity - vector, $\overline{w}$, describes on the Tangential-Plane of the Angular-Momentum-Ellipsoid, the Herpolhode, while,
4. The Nib of Angular-Momentum, $\overline{B}$, describes on the Tangential-Plane, of the Angular-Velocity-Ellipsoid, the Polhode.
5. The Fixed-Tangential-Planes on, $\overline{w}$, and, $\overline{B}$, nib are alternately Perpendicular to, $\overline{B}$, and, $\overline{w}$, common Central Axes of Rotation.
6. The Kinetic Rotational – Energy of monad, which is the Work in monad, *is the Scalar quantity,* L, *The Vector Angular Momentum quantity* is, $\overline{B}$, and the *Vector of Angular-Velocity quantity* is, $\overline{w}$, *which Three monads are related as* $\overline{B}.\overline{w} = 2L = J.w^2$ where J = The moment of inertia around the axis of rotation = ⇅
7. All above happen in, Material-Point, *where the Positive* ⊕ *constituent* The + $\overline{c}$, is *Eternally self - rolling on the* Negative ⊖ constituent, The - $\overline{c}$, with Angular-Velocity w, *in Infinite Spherical traces, either at Great-circles* [+ or -], *or Small-circles,* [+] where is the Clockwise Left direction and [-] where is Anti-Clockwise Right direction or *any other close Spherical-curve,* and *Applying all laws of Mechanics into this Energy Chaos, is thus created the* → First–Discrete-Energy–monad $\overline{B}$, *the Material Point* ← i.e. The Angular Momentum $\overline{B}$, is the Quantum of Physics and is, *for all the Energy – Space-Universe.* The Energy = E dissipated per cycle is equal to the Work $W_d = E = h\,f = \frac{h(1+\sqrt{5})}{4\pi}.[\frac{\sigma}{r}] = 8.k\zeta(\pi r^2)$ and is *Stored in monad, which is a Stationary Wave with and - in,* n, *loops* as $W_n = [\frac{4\pi r^2}{3}].f_n = [\frac{4\pi r^2}{3}].nf_1 = n\frac{(1+\sqrt{5})\sigma r}{3} = n\frac{[\sigma\Phi.r]}{1,5}.$
8. Geometry has as Monad, *The discrete continuity* $\overleftrightarrow{AB}$ -length becoming from the *Zero Point* ≡ 0, and Mechanics-Physics the Recent-Acquisition of the Material - Geometry, where Zero-Point, 0 = ∅ = {⊕+⊖} = The Material-Point = *The Quantum of Space,* as, The Positive Space and The Negative Anti-Space. [58]

In Fig-8, The Light velocity vector $\overline{c}$ = 2,9979. 10^8 m/s Rotates In the Planck`s length Perimeter r_P = 1,616255.10^{-35} m, and is thrusted through The Newton's –Gravitational Force $\overline{G}$, During Rotation is created Work which is stored in the circle Surface as Angular - Momentum $\overline{B}$ = r m

$v = \frac{J.w}{2} = [\frac{\pi.r^4}{4}]\frac{c}{r} = [\frac{\pi.r^3}{4}].\bar{c} = [\frac{\pi.r^2}{4}].\bar{c} \times \bar{r}$, inSemi circle {+[4 -1-3]}, and Semi circle {- [4-2-3]}, for the Stability of Equilibrium.

i.e. Gravity + g ≡ The Vector of Angular-Momentum $\overline{B}$ ≡ + Spin ≡ ↓↻ ≡ The Work stored in the [4-1-3] Semi circle of the, $\bar{r}$ - $\bar{c}$ Vectors circle - SurfaceProduced from the Gravitational-Force, G, as ACTING into the –Planck- Cave, AND on the light Velocity Vector in, + ↓ $\bar{c}$ *Direction*.

Antigravity - g ≡ The Vector of Angular -Momentum $\overline{B}$ ≡ - Spin ≡ ↑↻ ≡ The Work stored in the complementary [4-2-3] Semi circle of the, $\bar{r}$ - $\bar{c}$ Vectors circle-Surface which is Produced from the Gravitational-Force, G, as ACTING into the - Planck- Cave, AND on the light Velocity Vector in The, - ↑ $\bar{c}$ *Direction*.

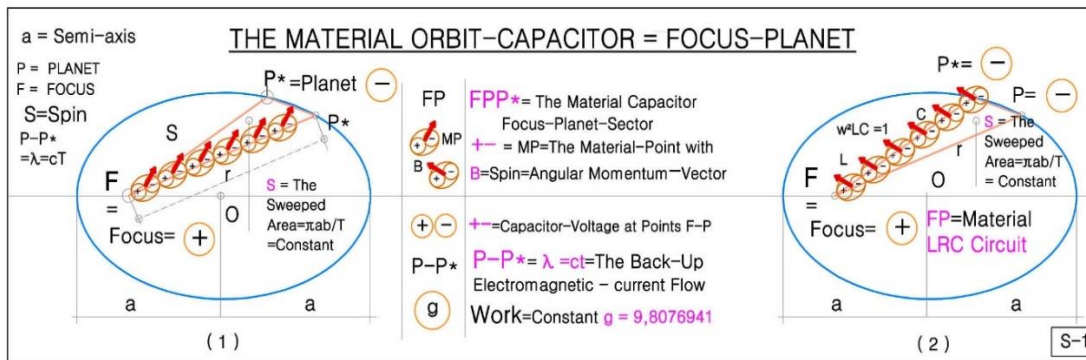**Figure 11: The Material, LRC Circuit on Orbit, on Focus-Planet-Sector |F↔P|**

In (1). Force g, as Wave, is directed to the center of rotation F, and is proportional to the distance PF ≡ Focus - Planet.The Gravitational Potential-Energy g_G = 9, 8076925 is stored in → Focus-Planet-Sector ≡ FP ← which is the Material Capacitor Stores charge *as that of Material-LRC-circuit*, and Inductors.

Because of the chains of Spins and of their Periodic excitation [↔], is thus created a Magnetic field due to the LRC-circuit and which is tuning to the critical Quantum and critical-State g_G. The chains of Spins are Pointy - vibrating with their characteristic frequencies $f = \frac{(1+\sqrt{5}).\sigma}{4\pi r}$ $\overline{B}$, and filling up the entire universe. Since Inner-stresses $\sigma_{1,2} = \sigma_1/2 \pm (\frac{1}{2})\sqrt{\sigma1^2 + 4.\sigma1^2} = \sigma_1/2$ [1±√5] follow the *Golden ratio on stresses* then this Quantum-energy g_G Produced, is the State causing them to Magnetically- Resonate. In Material-Point-chain of caves r = λ/2, and since ẋ = w.r → w = ẋ/r then *Golden ratio Damping-Force* is the Work produced with Unit Damping-ratio ζ=1.Since also ẋ = v then exists, $F_d = c.\dot{x} = 1m.w_n.\dot{x} = 1.[(\pi r^2/2) v^2].\frac{\dot{x}^2}{r} = [\frac{\pi r v^4}{2}] = g = \frac{2}{r}[\sigma(1+\sqrt{5})]^2 = \frac{4\sigma^2}{r}[3+\sqrt{5}]$.

This dissipation of Energy is determined under conditions of cyclic oscillations, and is dependent on Glue-bond σ, and r, cave. Since r is in denominator then for the very small caves, *the under Planck`s caves*, Damping-Force becomes infinite independently of Glue-bond. This

may be considered as a Type which happens in *Black holes* as this happens in algebra inverse fractions also.

In (2) is Presented the Back-Up Electromagnetic current flowing in Opposite direction FP, by changing the Spin Direction of the Sector-Material-Points such that work W = g. From Kepler`s 2nd law the, *Area* S, swept by any *Focus-Planet-Sector* ≡ FP is the constant k, and equal to, $S^2 = \frac{L^2 T^2}{4m^2} = \pi^2 a^2$.[b = πa $(\frac{L^2}{2mE})$], or $\frac{T^2}{a^2} = \frac{4\pi^2 m}{2E} = \frac{4\pi^2}{2E/m} = \frac{4\pi^2 a}{GM}$ and $\rightarrow \frac{T^2}{a^3} = \frac{4\pi^2}{GM} = k$ and k = $\frac{1}{f^2{}_n.a^3}$, from which issues $\rightarrow 1 = k. f^2{}_n. a^3$ and, k = $\frac{4\pi^2}{GM}$ whereIs seen that, Resonance between Focus-Planet exists through Space a and Energy f.

From the Second-order differential equation excited by a Harmonic external force, F_t.sin wt, and is as, m $\frac{d^2x}{dt^2}$ + c $\frac{dx}{dt}$ + k. x = F_t. sin w t, corresponds Physically to the free damped vibration, where x = the displacement, dx / dt = the velocity and, d^2x / dt^2 = the acceleration of monad, m, c, k constants, with the general solution given by the equation x = A. $e^{s1.t}$+ B.$e^{s2.t}$ + X sin(wt-φ) ......(1)

The Equation $\rightarrow$ L $\frac{d^2q}{dt^2}$ + R $\frac{dq}{dt}$ + $\frac{1}{C}$ q = E $_t$. sin wt.Corresponds Physically to the free damped vibration, where Charge q = is the Physical Property of matter that causes it to experience a force which can be Positive or Negative, dq / dt = the least quantized amount of charge, and d^2q / dt^2 = the Space distribution of charge, and L, R, C Inductance, Resistance, Elasticity constants with general solution given by the equation q = A. $e^{s1.t}$+ B. $e^{s2.t}$ + X sin(wt-φ) ......(2)

Equations (1), (2) give the analogic relation of the *Classical mechanics* [Space Position x] and the *Electromagnetism* [Quanta of Energy, q] of *Storing and Removing of energy in Energy-Space* cosmos.Distributed forces L_1- L_2 = L (di/dt), R_1- R_2 = R. i, C_1- C_2 = q / C respectively, showing the Identification of the Mechanical and Physical laws.

The way that *Potential-Energy is stored*, is that of Material - LRC- Circuit, which is for the Gravitational-Potential-Energy the *Material-Capacitor* or the → *Focus-Planet–Sector –Stores-Change* ← which develop a Voltage in response to that charge. The coil of wire is the infinite Stationary-Dipole-Spinning Material-Points of this → *Focus – Planet - Sector* ← which develops the Back-Electromagnetic-force, when current through them changes. In-Cave-Box exist two motions, *Revolving and Periodic*, the acceleration of Gravity g ≡ ± σ exists for the First Box-B_R , while *Local-Extreme-case* for the Second Box-B_P . In this Gravity g ≡ ± σ, is Locally altering S, by changing the Principal-stress σ with Local uniform Pressure g_L ≡ g k_E = g * [Force/Area] = G, i.e. is Proved that the minimum Local-Energy acceleration is the known *Universal Gravitational-constant* G = g k = k_E g = k_L σ = g g_L k_L such for *Macrocosm as for Microcosm*, and both cases Obeying Newton`s Laws of motion.

4.. Since Electron is rotating in Orbits so Electromagnetic Wave is also rotating, therefore is needed a Proper-Stationary-Magnet on which Rotation becomes Oscillation in order to succeed a clear 3-dimensioned, Φ^3, Magnetic-Resonance-Imaging [The MRI] and the other Systems use this Property of Bottom-Information. This Property of Spin in all depths of Energy - caves allows

the Granularity of Energy in Energy- loops, and after to be Bonded.This Property of Electron may be used for *Cancer Chromosomes.*

9c. The Conservation of Energy in → Velocity $\bar{c}$ and in Gravity $\bar{g}$ Caves ←

Since Gravity- $\bar{g}$ is the Energy ≡The Angular-Momentum $\{\bar{B} = r\ m\ v\}$ in Planck`s length r_P , and it is a Stationary-Wave or an Electromagnetic Wave-Signal which transmits Informations Then follows the Waves-Frequency-Signal-Spectrum.The Gravitational Constant G is the Active force on light velocity $\bar{c}$ and consequently on $\bar{g}$ also.

From Waves theory → Position x = A.sin wt and Acceleration $\ddot{x} = A\ w^2$ ← where the Signal-Spectrum is consisted of the Amplitude A_C and of the Angular frequency $\bar{w}$, from where all other Properties follow. Since $\ddot{x}$ ts the acceleration Force of Position x, then for Planck`s length issues $\ddot{x} = G = A^2{}_G.w^2$, or $\overline{w} = \sqrt{G/A^2} = \sqrt{6,68.\ 10^{-11}/[2,6262.\ 10^{-35}]^2}$ so Gravity-frequency→ $\overline{w}$ = $0,5057.\ 10^{30}$ H and Gravity-Wave-frequency f_{GW} =8,05. 10^{28} H ← THE GRAVITATIONAL FORCE ACTION : $[[G]] → \{[\bar{c}] ± E_n\} ≡ \bar{g} ≡ E_n+\{[G] ± [\bar{c}]\}$ and → $E_R = E_G + E\ \bar{c}$ ← where, $[[G]]$ = [Gravitational Constant G] ≡ The Signalling.(W c) → The Carrier - Wave $[[\bar{c}]]$ = Any Action of [G - ON- $\bar{v}$] ≡ Any Signalling.($\bar{v}$) Modulating Velocity-Wave $[[\bar{g}]]$ = The New Modulated $[G ↔ \bar{v}]$ Signal ≡ $f\frac{\bar{v}\ m+wc}{2} + f\frac{\bar{v}\ m-wc}{2}$ ≡ [MAS] COMPOUND = The Demodulated [MAS] ≡ $f\frac{w+2wc}{2} + f\frac{w-2wc}{2}$ ≡ [DMAS]. $\bar{v}$, since [G = The CARRIER] →[$\bar{c}$ = The MODULATOR]→[G+$\bar{c}$ = The MODULATED] and [G+ $\bar{c}$] + $\bar{g}$ ↔ [DM = ANTIDOTES] = The DEMODULATION] i.e. The Communications–Frequencies In Planck`s Cave, are the Wave Resonances which consist the Master-Keys of these wave - caves.

The Conservation of Energy in Caves and in Atoms Compounds. [106]
<u>THE ATOMS – ACTIONS:</u> $[[A]] → \{[B]±E_n\} ≡ C ≡ E_n + \{[A] ± [B]\}, → E_n = E_C + E_A$ ← and where
$[[A]]$ = [Atom OR Compound] ≡ The Signalling. (Wc) → The Carrier - Wave
$[[B]]$ = Any[A-OR-C] ≡ Any Signalling. (w) Wave = The Modulating - Wave
$[[C]]$ = The New Modulated Wave [A] Signal ≡ $f\frac{w+wc}{2} + f\frac{w-wc}{2}$ ≡ [MAS]
ANTIDOTE = The Demodulated [MAS] ≡ $f\frac{w+2wc}{2} + f\frac{w-2wc}{2}$ ≡ [DMAS], $\bar{w}$, as

The Atoms Action (1)... $[A] → \{[B]±E_N\} ≡ [C] ≡ ± E_N + \{[B] + [A]\},$, $[A] ≡ [C] +\{X_N\}$
$[A]$ = The Initial, $[C]$ = The Final, $[X_N] = \{[B] ± [E_N]\}$ ≡ The Antidote.

The Atoms Action (2) .... $[A] → [± E_N] ≡ [C] ≡≡≡ ± E_n + [A],,,,$ $[A] ≡ [C] + [E_N]$
$[A]$ = The Initial, [C} = The Final, $[E_N]$ ≡ The Antidote, The Circular-Signal-Action is as, I → F = [I + F] and [I + F] ↔ [DM] ≡ Antidote, or Still-Actions [I = CARRIER] →[F = MODULATOR]→[I+F = MODULATED] → → [I+F] + M ↔ [DM = ANTIDOTES] = THE DEMODULATION] The Communications –Frequencies In Atoms - Caves, are their Wave Resonances which consist the Master-Keys of all the wave - caves.

10c. The Energy - Superflow in MFMF-PNS Space-Levels for Black-Holes Origination

1. It was Prior Proved that Angular-Momentum of the Primary-motion in PNS Space is a Quaternion of dimension Power $(s + \bar{v}\ \nabla i)^{1/d} = \sqrt[d]{(s + \bar{v}\ \nabla i)}$, which follows that of Spaces Origination.

2. It was Prior Proved [70] that in PNS - Space the inner Forces of a System, are the two equilibrium Centripetal and Centrifugal Forces due to the Eternal, $\pm \sigma$, Stresses of Opposites [$\oplus\leftrightarrow\ominus$] Originate motion u, as $J_1.u^2 \cos\vartheta - J_3 w_3.u + s. Q = 0$.

This Quadratic equation has 4 - Solutions where the Angular velocity Complex number $u = |\overline{w}|$ $= \frac{sQ}{B} = \frac{sQ}{J_3 w} = |\overline{w}| = \frac{d\varphi}{dt} = [\frac{J_3.w_3}{2\,J_1.\cos\vartheta}] \pm [\frac{k_{PNS}}{2\,J_1.\cos\vartheta}].i = s \pm v\,i$, or $\rightarrow$ Angular-velocity $|\overline{w}| = \frac{J_3.w_3}{2\,J_1.\cos\vartheta} \pm$ $\sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2} = s \pm \{\sqrt{D}\}.i \leftarrow$ where $s = [\frac{J_3.w_3}{2\,J_1.\cos\vartheta}]$, $\overline{D} = [\frac{k_{PNS}}{2\,J_1.\cos\vartheta}]$, $k_{PNS} = \sqrt[2]{[J_3.w_3]^2 - 4.sQ.J_1\cos\vartheta}$

The constant Work exists on the common Central Axes of Rotation which is Fixed to the Tangential-Planes of $\overline{w}$ & $\overline{B}$ nib, being alternately Perpendicular to, $\overline{B}$, and, $\overline{w}$, and found to be as $\overline{B}.\overline{w} = 2L = J.w^2$. The frequency monad of rotation in the PNS Space is as $\rightarrow f_{PNS} = \frac{sQ}{2\pi.J_2.w} \leftarrow$ with the following 4 - Solutions for $|\overline{w}|$,

- Solution-1 $\Rightarrow |w_1| = [s] + [\sqrt{\overline{D}}] \rightarrow$ Real Root $\equiv$ Huge Minerals at Edge of Universe.
- Solution-2 $\Rightarrow |w_2| = [s] - [\sqrt{\overline{D}}] \rightarrow$ Real Root $\equiv$ Atoms & Compounds into Structures.
- Solution-3 $\Rightarrow |w_3| = [s] + [\sqrt{\overline{D}}].i \rightarrow$ Imaginary Root $\equiv$ Huge BH at centres of Galaxies.
- Solution-4 $\Rightarrow |w_4| = [s] - [\sqrt{\overline{D}}].i \rightarrow$ Imaginary Root $\equiv$ Micro BH at centre of Molecules.

where BH = Black Hole. From 4-above issues,

A-Velocity $|\overline{w_1}| = \frac{J_3.w_3}{2\,J_1.\cos\vartheta} \pm \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2} \equiv \frac{J_3.w_3}{2\,J_1.\cos\vartheta} + \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2}$

A-Velocity $|\overline{w_2}| = \frac{J_3.w_3}{2\,J_1.\cos\vartheta} \pm \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2} \equiv \frac{J_3.w_3}{2\,J_1.\cos\vartheta} - \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2}$

A-Velocity $|\overline{w_3}| = \frac{J_3.w_3}{2\,J_1.\cos\vartheta} \pm \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2} \equiv \frac{J_3.w_3}{2\,J_1.\cos\vartheta} + \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2}.i$

A-Velocity $|\overline{w_4}| = \frac{J_3.w_3}{2\,J_1.\cos\vartheta} \pm \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2} \equiv \frac{J_3.w_3}{2\,J_1.\cos\vartheta} - \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + (\frac{J_3.w_3}{2\,J_1.\cos\vartheta})^2}.i$

Angular-velocity $\overline{w}$ *is a vector*, and Rotates in one axis k with respect to variable $\overline{B}$ Momentum and, the Ellipsoid of $|\overline{w}| \equiv$ Quaternion of dimension Power $(s \pm \overline{v}\,\nabla i)^{1/d}$ The Inertia J-Ellipsoid of $|\overline{w}|$ gives two Anti-Symmetrical Inertial Ellipsoids, a Real and an Imaginary in their Polhode and Herpolhode Cones as below,

$\Rightarrow$ The-Real $\overline{w} \equiv$ {Polhode $\equiv$ Cone OPS, Herpolhode $\equiv$ Cone OPT, [$\circlearrowright$ Rolling] on the Ellipsoid axis, $\downarrow$ Normal ON the Unmovable & Attitude-Plane of the [PSPT] Truncated-Polar-Cone}.
$\Rightarrow$ The-Imaginary $\overline{w} \equiv$ {Polhode = Cone OPS, Herpolhode = Cone OPT [$\circlearrowleft$ Rolling] on the Anti-Symmetrically-Ellipsoid-axis, $\uparrow$ Normal ON the Unmovable & Attitude-Plane of the [PSPT] Truncated-Polar-Cone}.

It has been Proved that $\overline{B}$, $\overline{w}$ Vectors exist as, E = Energy =motion, S = Space =Length
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Both magnitudes define the Unit-Energy Vectors → {<u>Unit-E Vector R</u> $=\frac{\sigma}{J.w^2}=\frac{\sigma}{\overline{B}}$} ← When the <u>Unit-E.Vector R</u> is Placed ON [<u>AB≡2R S.Diameter</u> of Spaces-Neutral-circle] Then Energy-Monad $|\overline{R}|$, exists on, Space-Monad $|AB| \equiv |\overline{R}|$ and is {E+S -Monad $|\overline{R}|$} Or is The {Energy – Space - Monad $|\overline{R}| \equiv |AB|$}, where the magnitudes, Spaces Sides $\lambda_n = 2,\sqrt{R^2 - a^2_n}$, & the Quantum Critical-Side $a_n = \frac{1}{2}\sqrt{4R^2 - \lambda^2_n}$, Every=Monad occupies AB = 2|R| Diameter = Space & Unit-E-Vector R$=\frac{\sigma}{J.w^2} = \frac{\sigma}{\overline{B}}$= motion. The Quantization of Energy in Spaces happens by following the *Archimedes formula* for Duplication of Sides as $\lambda_{2n}=\sqrt{2R^2 - R\sqrt{4R^2 - \lambda^2_n}}$ & Critical-Sides $a_{2n}=\frac{1}{2}\sqrt{4R^2 - \lambda^2_{2n}}$. The Energy-Monad $|\overline{R}| = \frac{\sigma}{J.w^2} = \frac{\sigma}{\overline{B}}$ remains the same in PNS - Space while The Spaces Sides change as λ_{2n}, a_{2n}, when the Monad $|\overline{R}|$ enters the 2n.

The 4 - Solution for Real and Imaginary Root is as below,
- The $|\overline{w_1}|$ Solution is the Real -Root giving the Strongest in Amplitude Energy-Structions.
- The $|\overline{w_2}|$ Solution is the Real -Root giving the Weakest in Amplitude Energy-Structions.
- The $|\overline{w_3}|$ Solution is the Imaginary-Root giving the Mega Tapered-Amplitude E-Structions.
- The $|\overline{w_4}|$ Solution is the Imaginary-Root giving the Micro Black-Holes Structions.

From Gravity relation G = g k_E =9,8076941.6,8116.10^{-12} = 6,68056.10^{-11} m³/ N.s² from Energy-loop relation 1 = c. r³. $f_P{}^2$ → $f_P=\sqrt{1/cr^3}$, and from f = E / h then f = $\frac{E}{h} = \sqrt{1/cr^3}$ or → E = h.$\sqrt{1/c. r^3}$, and $\frac{E^2}{h^2} = \frac{1}{c\,r^3}$ or, E² = $\frac{h^2}{c\,r^3}$, an Energy relation between the, c, r.

This relation is used for Black- Holes Energy where r, result to zero,

The Permissible-Permeable-Resonance-Paths for their means are for,
7) Particles → The Resultance of the One-Dimensional-Collision $\overline{v}_{ij}= \overline{v}_j - \overline{v}_i = \overline{w}_{ij}. \overline{r}_{ij}$
8) Particles → The Cauchy Ellipsoid-Stress-tensor where {$\overline{w} \perp \overline{B} \perp \overline{r} \equiv \sigma_1 \perp \sigma_2 \perp \sigma_3$}
9) M-Points → The Resonance-frequencies f_R [S ≡ $f_{1= n}$, f_2, f_3,$f_{R=}w^2$]= f_n = [⊕↔⊖] = n $\frac{(1+\sqrt{5})\sigma}{4\pi r}$ = $\frac{n.\sigma.\overline{B}}{8\,r^2}$ → i.e. The Golden-ratio-Pattern, which is related to Spin.

From Solution-3 the magnitude D becomes maximum when $\frac{sQ}{J_1.\cos\vartheta} \equiv$ maximum or, when $|\theta\overline{r}|$ axis is $\perp \overline{B}$ and Cone-angle θ $\Rightarrow$ 90. From Energy relation E = W = 2L = $\overline{B}. \overline{w}$ = J.w² Angular-Momentum $\overline{B}$ = [3,3770539.10^{-96}J].[5,613308.10^{45}Hz] = 1,895644.10^{-50} J/s, i.e. The Planck`s cave,$10^{-35}$ m, is The Safety-Valve ≡ The Critical State for the Stress Ellipsoids,$\overline{B}$ $\overline{w}$, Vectors in order that this Total-Energy to Superflow and be Still into Vacuum ≡ [$10^{-62}$-$10^{-35}$m]. This Vacuum between the |Gravity cave - Planck`s cave| CONSISTS The BLACK - HOLES - CHAOS, as the Recycling–Energy into which → The {Energy – Space - Monad $|\overline{R}| \equiv |AB|$}, Vanishes ≡ Decomposes ←

In Physics exist,Two different Potential-Energies between Planck Spaces and Gravity Spaces as U_{PLANC} and $U_{GRAVITY}$.The difference $\Delta U = U_{GRA} - U_{PLA}$ is the Flow-Energy between the Two Energy Levels $L_{PLA} = 6,6262. 10^{-34}$ m, and $L_{GRA} = 1,777. 10^{-62}$ m, From cave $L_{PLA} = 6,6262. 10^{-34}$ m and $f_P = {}^2\sqrt{\dfrac{g}{a^3}} = {}^2\sqrt{\dfrac{9,8078}{(6,6262.10^{-34})^3}} = 1,83585. 10^{50}$ H then $\rightarrow E_{PLA} = h. f_P = 6.62607.10^{-34} . 1,83585.10^{50} = 1,216447. 10^{17}$ J. The minimum Charge in Planck`s cave $\rightarrow q_{PLA} = 1Cb = 1,6.10^{-19}$ eV, From Voltage relation $\Delta U = \dfrac{Energy}{Charge}$ issues, 1Volt $= \dfrac{1Joule}{1Culomb}$ or $1V = \dfrac{1J}{1C}$ ....(v)

In order that 1Cb may overflow and Flow from Planck`s cave To the Gravity cave, then must exist a Voltage $\Delta U > = 7,593.10^{35}$ eV, and be as....(v)

$$V_{GRA} = \frac{h.f_P .}{1Cb} = \frac{1,216447.10^{17} J}{1,6022.10^{-19} eV} = 7,593.10^{35} \text{ V, i.e.}$$

$\rightarrow$ When the Energy in Planck`s cave L_{PLA}, Increases to an Voltage $>= 7,593.10^{35}$ V then the motion$\equiv$ Energy between the Two Opposite elements of MP-Dipole $[\oplus\leftrightarrow\ominus]$ Becomes a Stationary Flow $[\oplus,\ominus] \equiv$ Charges $[\oplus-\varnothing-\ominus]$ in Gravity Cave L_{GRA}. So Energy $\equiv$ motion, exists in L_{GRA} as an $\rightarrow$ Pointy Rotational Centripetal Force $\leftarrow$
$\rightarrow$ When the Energy in Planck`s cave L_{PLA}, Decreases to an Voltage $=< 7,593.10^{35}$ V then motion $\equiv$ Energy between the Two Opposite elements of M-P-Dipole $[\oplus\cup\cup\ominus]$ Creates the A-velocity-vector $\overline{w}$ which Rotates in the axis k with respect to variable $\overline{B}$. So when Unit-Energy Vectors $\overline{R} = \sigma / \overline{B}$ exists on the Unit-Space-Monad $|AB| \equiv |\overline{R}|$, Then is $\rightarrow$ {The Energy –Space - Monad $|\overline{R}| \equiv |AB| \equiv$ The Existing Universe} $\leftarrow$
For The Chaos - Motion $\rightarrow$ Angular – Momentum $\equiv$ The Rotational Energy $\overline{B} \leftarrow$
For The PNS – Spaces $\rightarrow$ Angular – Momentum $\equiv$ The Rotational Energy $\overline{\Lambda} \leftarrow$

From Fig-13 and Solution-3, magnitude D becomes maximum when $\dfrac{sQ}{J_1.\cos\vartheta} \equiv$ maximum or, when $|\theta\overline{r}|$ axis is $\perp \overline{B}$ and Cone-angle $\theta \Rightarrow 90$, where Energy E $=W= 2L= \overline{B}. \overline{w} = J.w^2$, Angular-Momentum $\overline{B} = [3,3770539.10^{-96}J].[1,15346.10^{51}Hz] = 3,895312.10^{-45}$ J/s, i.e. The Planck`s cave, $10^{-35}$ m, is The Safety-Valve $\equiv$ The Critical State for the Stress Ellipsoids,$\overline{B}$ $\overline{w}$, Vectors in order that this Total-Energy to Superflow and be Still into Vacuum $\equiv [10^{-62}-10^{-35}m]$. This Vacuum between the |Gravity cave - Planck`s cave| CONSISTS The BLACK - HOLES - CHAOS, as the Recycling–Energy into which $\rightarrow$ The {Energy – Space - Monad $|\overline{R}| \equiv |AB|$}, Decomposes $\leftarrow$ {Fig-13}

IN FIGURE, THE HERPOLHODE- CONE PLANE IS A CIRCLE WHERE VECTOR $\overline{B}$ ROTATES, AND WHEN $\theta \Rightarrow 90$. THEN CONE BECOMES A CIRCLE, where Energy follows $[\oplus \varnothing \ominus]$ mode as $\rightarrow +$ when $\theta = 0 = < 90$, and - when $\theta = 90 – 180 \leftarrow$ It was shown that, the Energy from Chaos $[\oplus - \varnothing - \ominus$ becomes Momentum $\overline{w}, \overline{B}$, and is Composed $\equiv$ Quantized through the Physical-[STPL]-line-Mechanism, In-circle $\Rightarrow$ Triangles $\Rightarrow$ Ex-circle $\Rightarrow$ Ex-Triangles consisted with the three Spaces. On this PM exist the Three Breakages $[s^2 = \oplus, 2s^2 = \varnothing, - s^2 = \ominus]$ which Circularly-Charge ON the Three – Extreme - Triangles {A B C}, {$K_A K_B K_C$}, {$A_E B_E C_E$} and thus launch. The Energy-Quantity $\pm Q_{p-p}= [\dfrac{c.S}{r}] \equiv$ Centripetal-Force from Chaos to PNS Space, On the Pascal`s -Desargues

Points-Line through the STPL Circuit caves r, and from the Ptolemy`s & Ceba`s Still-mechanism. {Fig-24}

Remark

Electron, e, m_e = 0, 511MeV = 0, 511. 10^{-6} eV. [1,80. 10^{-27}] = 9,198. 10^{-34} Kg a_e = 5,0.10^{-18} m,Charge C_e =1,602.10^{-19} C, Spin S_e = $\frac{S}{2}$ =2,845976.10^{-34}{Kg/m/s}, Using $E_{eK} = \frac{k}{r} + \frac{cS^2}{2m.r^2} = \frac{36.10^{-20}}{7,10^{-18}} + \frac{3.10^8(5,691952.10^{-34})^2}{2.9,198.10^{-34}[5.10^{-18}]^2}$ = 51,428 eV + 2,111843.10^{10}J = 51,43 eV+ 1,32.10^{29} eV, i.e. The Energy Increases inverse analogous to the cave.

11c. The Quantization of E-Geometry to its Dimensional-moulds
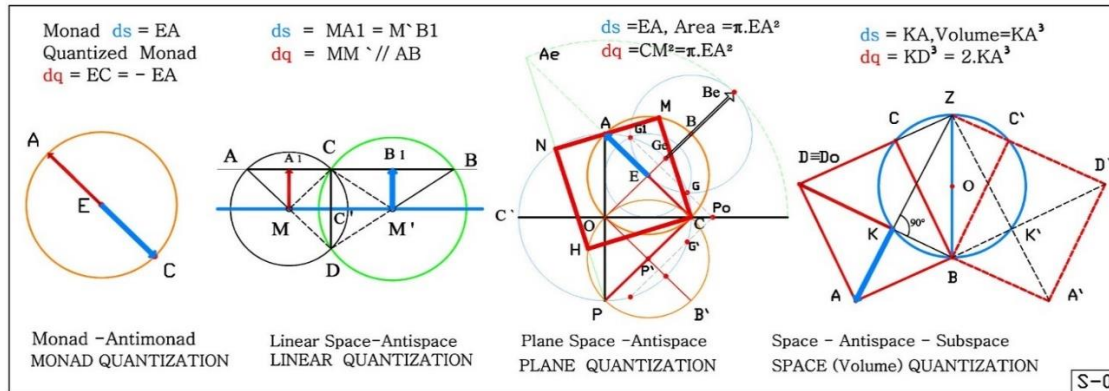
Figure 12: The Quantization of E-Geometry to its moulds, The Point, the Linear, the Plane, the Space (volume) Mould for E-geometry Quantization, to Opposite.

For (1) monad EA, to Antimonad EC–For (2) AB line to Parallel line MM` - For (3) CE Radius to the CM Square Segment - For (4) KA Segment to the KD Cube Segment. From Fig-12 the Two-Perpendicular Vectors, CA ⊥ CP, Slide on (O, OA) circle and through the Three Poles, A, C, P, carry the Stress σ, of Square ACPC, To the Two Equal and Opposite Squares |COAB|, |COPB'| for still to the Halve Area - Stress - Conservation.

For the Rotating Square CMNH exist as Upper-Still-State the Square CAC`P and as Lower - Still-State the Square CBAO, related [CAC`P] = 2. [CBAO].

In(3)..On Two-Perpendicular Vectors, CA ⊥ CP, Point C` Slides on (O,OA = OP) circle forming the CAC`P to CMNH to CBAO Squares with Prior of (1) Properties.This SlidingRotating Method is Markos {2-Vectors 3-Poles Mechanism} which Circles and Squares as Areas Pass from the Point M determined by Position A_e, such that issues π r^2 = CMNH Square.The Squaring of the circle is π $[\frac{CA}{\sqrt{2}}]^2 = CM^2 = |CM`|^2$, Fig-15, [47-51], [62]

In Fig-13 any Two - Ellipsoids are, Interchangeable {Energy - Space} Ellipsoids, on where Exist *The Energy-Rotational Momentum-Ellipsoid* (O, $\bar{ρ}$) *as {Work}*≡ Angular-Velocity-vector - Unit-sphere → Space ≡ *The Inertial- Ellipsoid* (O, $\bar{a}$) *{Force}*≡ The Reaction to the velocity-change-motion → Space ≡ *The Mass - Ellipsoid {Mass}*= (GD = J_a ≡ $\bar{M}$), and Between the Types of Ellipsoids issues $\bar{ρ}. \bar{a} = J_a$...(12) For OP ≡ [⊕↔⊖] of rotation, Point P is the, *Nib*, of Angular-velocity vector $\bar{w}$, which Sweeps - Out at OP slant height of the Central, POT - Cone where issues

$\overline{w} = \frac{v}{R} = 2\pi$ f. The Unit-Space -Vectors, $\overline{B}.\overline{w}$, & The Unit-Energy-Vectors, $\overline{B}.\overline{w}$, Ellipsoids.
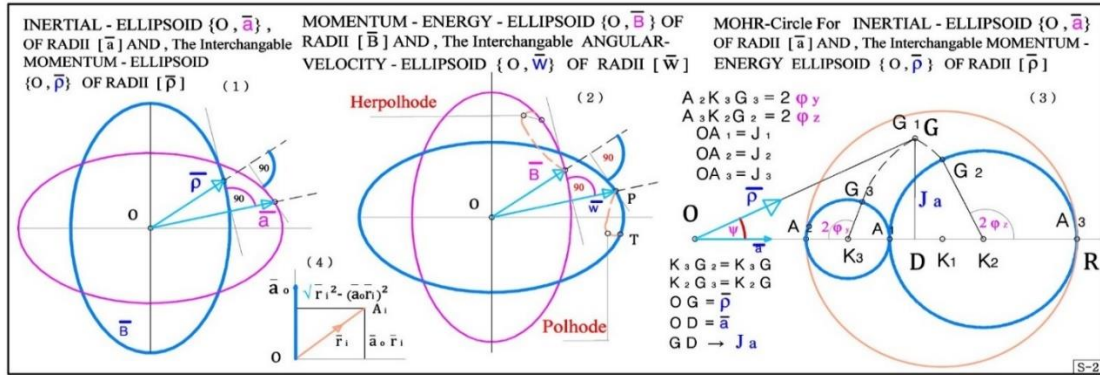
Figure 13: Shown the Geometrical-meaning of $\overline{a_o}$ $\overline{r_i}$, $\sqrt{r_i{}^2 - (\overline{a_o}\ \overline{r_i})^2}$ terms of radius OA $_i$

In (1) is shown the *Inertial - Ellipsoid* (O, $\overline{a}$) of Radii, $\overline{a}$, and the Interchangable Momentum–Ellipsoid (O, $\overline{\rho}$) of Radii, $\overline{\rho}$. (O, $\overline{\rho}$). The same for {$\overline{B}$, (O, $\overline{B}$)}

In (2) is shown the *Momentum - Energy - Ellipsoid* (O, $\overline{B}$) of Radii, $\overline{B}$, and the Interchangable Angular Velocity – Ellipsoid (O, $\overline{w}$) of Radii, $\overline{w}$. S = Space

In (3) is shown in Mohr-method, the Geometrical construction from the two Interchangable Ellipsoids→*The Energy-Rotational Momentum–Ellipsoid* (O, $\overline{\rho}$), where
- {*Work*} = The Angular-Velocity-vector -Unit-sphere, S =*The Inertial- Ellipsoid* (O, $\overline{a}$),
- {*Force*}= The reaction to the velocity-change-motion, S = *The Mass - Ellipsoid*
- {*Mass*} = (GD = $J_a \equiv \overline{M}$), and Between the Types of Ellipsoids issues $\overline{\rho}.\ \overline{a} = J_a$..(12)

The above Property of the two Interchangable-Ellipsoids defines the deep relation between,
The Angular-velocity-Ellipsoid → $J_1 w_1{}^2 + J_2 w_2{}^2 + J_3 w_3{}^2 = 2L = C = J_a\ \overline{w}^2$ ....(13) and
The Momentum-Energy-Ellipsoid → $\frac{1}{J_1} B_1{}^2 + \frac{1}{J_2} B_2{}^2 + \frac{1}{J_3} B_3{}^2 = 2L = C = J_a\ \overline{w}^2$.....(13a)

Conclusions
1. From the generated Radius $\overline{a}$ =*The INERTIAL-Ellipsoid* of a Solid Fig-13-1 corresponds another Radius $\overline{B}$, Fig-13-2 *Momentum –ENERGY– Ellipsoid,* to the Common-Point O of Rotation.The Radius $\overline{B}$ is Perpendicular to the Tangential-Plane at the Nib of the $\overline{w}$ Angular Velocity-Ellipsoid. Similarly the Radius $\overline{B}$ is Perpendicular to the Tangential-Plane at the Nib of the $\overline{B}$ of the Angular-Momentum-Ellipsoid. From relation (12), the vertical-Projection of the radius, $\overline{\rho}$, at the corresponding conjugate radius $\overline{a}$, of the Unit Sphere, denotes the meter to the Solid last Angular momentum. Because the Unit-Energy-Vectors, $\overline{B}.\overline{w}$, are related as $\overline{R} = AB = \sigma\ /\ \overline{B} = \sigma\ /\ J.w^2$, i.e. the common velocity vector c = w r = 2.B / π r ^{3}, therefore issues and for all the 5-Spaces.
2. Inversely The Unit-Energy-Vectors, $\overline{B}.\overline{w}$, Decompose when B_{crit}=J w = $\frac{\pi r^3}{2}[c/r]$ = $[\frac{\pi r^2}{2}]c$ Or when $\overline{w}$ becomes maximum, i.e. for Gravity and Antigravity happens when |θ$\overline{r}$| axis is Perpendicular (⊥) to $\overline{B}$ and the Cone-angle θ $\Rightarrow$ 90, and Energy E =W= 2L= $\overline{B}.\ \overline{w}$ = J.w². From the $\overline{c}$ Physical -Magnet, $\overline{w}$ is Quantized to the 2-Constitutes $\oplus \rightrightarrows \ominus$ as the Prior.

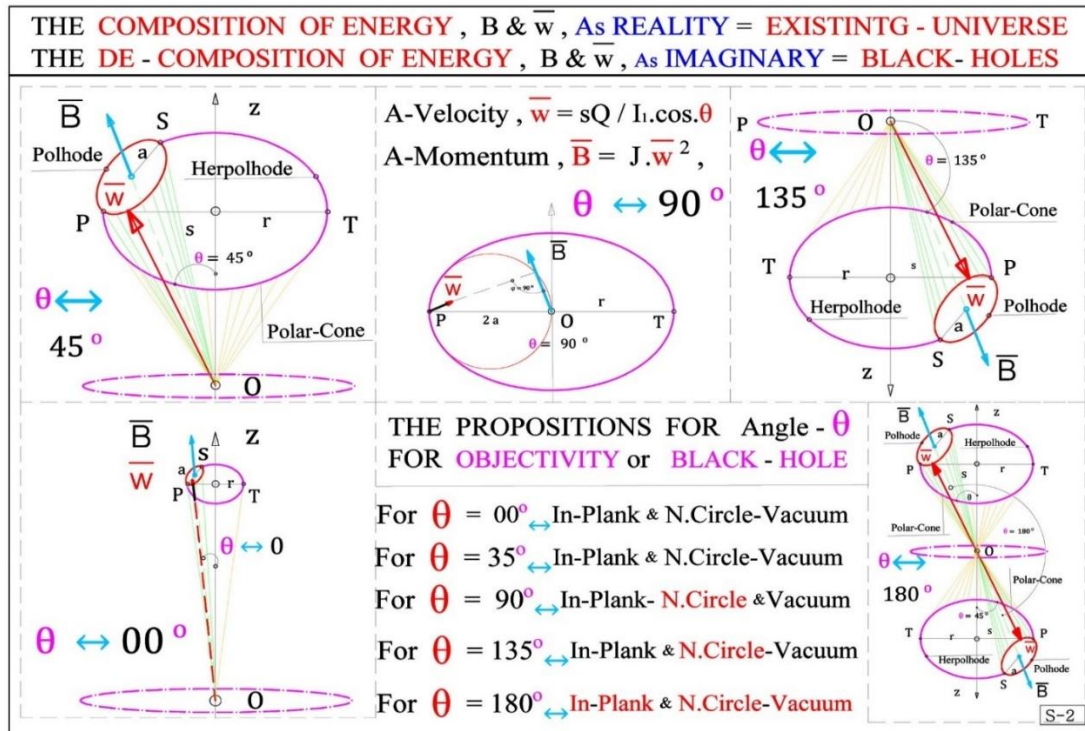## 12c. The De-Quantization of Energy from, PNS $\Rightarrow$ MFMF, $\equiv$ Empty Space

Figure 14: The Angular-velocity $|\overline{w}| = \frac{J_3.\,w_3}{2\,J_1.\cos\vartheta} \pm \sqrt[2]{-\frac{sQ}{J_1.\cos\vartheta} + \left(\frac{J_3.\,w_3}{2\,J_1.\cos\vartheta}\right)^2} = s \pm \{\sqrt{\overline{D}}\}.i$

$$\Rightarrow |w_3| = [s] + [\sqrt{\overline{D}}].i, \quad s = [\frac{J_3.\,w_3}{2\,J_1.\cos\vartheta}], \quad \overline{D} = [\frac{k_{PNS}}{2\,J_1.\cos\vartheta}], \quad k_{PNS} = \sqrt[2]{[J_3.\,w_3]^2 - 4.\,sQ.\,J_1\cos\vartheta}$$

From 10.c, the Unit-Energy-Vectors, $\overline{B}.\overline{w}$, $f_P = 1{,}836.10^{45}$ Hz in PNS–Space become

1. From relation $\overline{w} = 2\pi.f_{PNS}$, then $w_{PNS} = 56{,}13308.10^{44}$ Hz $= 5{,}613308.10^{45}$ Hz,

2. From Centripetal Force in MFMF Space $F_C = \sigma = \frac{m.v^3}{r} = J\,w^2\,r = \overline{B}\,w\,r$, then $\overline{B} = J\,w$, or $\overline{B} = J$
    $w = [\frac{\pi.r^4}{2}].w = \frac{\pi[1{,}6162.10^{-35}]^4\,(5{,}613308.10^{45})}{2} = 3{,}3770539.10^{-96}$ J and for eV, $\overline{B} = 3{,}3770539.10^{-96}$ J $/ 1{,}6022.10^{-19}$ C $= 3{,}754935.10^{-76}$ eV.

3. From Sol -3 the magnitude D becomes maximum when $\frac{sQ}{J_1.\cos\vartheta} \equiv$ maximum or, when $|\theta\overline{r}|$ axis $\perp \overline{B}$ and Cone-angle $\theta \Rightarrow 90$. From Energy relation $E = W = 2L = \overline{B}.\overline{w} = J.w^2$ Angular-Momentum $\overline{B} = [3{,}3770539.10^{-96} J].[5{,}613308.10^{45}$ Hz$] = 1{,}895644.10^{-50}$ J/s,

i.e. The Planck`s cave, $10^{-35}$ m, is The Safety-Valve $\equiv$ The Critical State for the Stress Ellipsoids, $\overline{\overline{B}}$ $\overline{w}$, Vectors in order that this Total-Energy to Superflow and be Still into Vacuum $\equiv [10^{-62}$- $10^{-35}$m]. This Vacuum between the |Gravity cave - Planck`s cave| CONSISTS the BLACK - HOLES - CHAOS, as the Recycling–Energy, into which

$\rightarrow$ The {Energy – Space - Monad $|\overline{R}| \equiv |AB|$}, Vanishes $\equiv$ Decomposes $\leftarrow$

$\rightarrow$ In Physics exist, Two different Potential-Energies between Planck Spaces and Gravity

Spaces as U_{PLANC} and $U_{GRAVITY}$. The difference $\Delta U = U_{GRA} - U_{PLA}$ is the Flow-Energy between the

Two Energy Levels L $_{PLA}$ = 6,6262.10^{-34} m, and L $_{GRA}$= 1,777.10^{-62} m, The Total Energy in Planck`s cave is → E $_{PLA}$ = 1,216447. 10$^{17}$ J, and The minimum Charge in Planck`s cave → q $_{PLA}$ = 1Cb = 1,6.10^{-19} eV, From Voltage relation ΔU = $\frac{Energy}{Charge}$ issues, 1Volt = $\frac{1-Joule}{1-Culomb}$ or 1V = $\frac{1J}{1C}$ ....(v)

In order that 1Cb may Overflow and Flow from Planck`s cave To the Gravity cave, then must exist a Voltage ΔU > = 7,592354.10 ^{35} eV, and be as......(v)

$$V_{GRA} = \frac{h.f_P.}{1Cb} = \frac{1,216447.10^{17} J}{1,6022.10^{-19} eV} = 7,593.10^{35} \text{ V, i.e.}$$

⇒ When the Energy in Planck`s cave = L$_{PLA}$, Increases to an Voltage = 7,593.10 ^{35} V then the motion≡ Energy between the Two Opposite elements of MP-Dipole [⊕↔⊖] Becomes a Stationary Flow [⊕,⊖] ≡ Charges [⊕ - ∅ - ⊖] in Gravity Cave L $_{GRA}$.

So, Energy ≡ motion, exists in L $_{GRA}$ as an → Pointy Rotational Centripetal Force ←
⇒ When the Energy in Planck`s cave L$_{PLA}$, Increases to an Voltage V$_{CR}$ > 7,593.10 ^{35} V then motion ≡ ⇄ ≡ Energy between the Two Opposite elements of M-P-Dipole [⊕↺↺⊖] Creates the Negative-Angular -velocity-vector $\overline{w}$ ↓, which Rotates in the Symmetrical to Neutral circle axis k = ↓ with respect to the Interchangable variable $\overline{B}$ ↓.

This is the Case of The Black-Holes - Origination.
⇒ When the Energy in Planck`s cave L$_{PLA}$, Decreases to an Voltage = < 3,695.10 ^{30} V then motion ≡ ⇄ ≡ Energy between the Two Opposite elements of M-P-Dipole [⊕↺↺⊖] Creates the Positive-Angular -velocity-vector $\overline{w}$ ↑, which Rotates in the Symmetrical to Neutral circle axis k = ↑ with respect to the Interchangable variable $\overline{B}$ ↑.

This is the Case of The Universe – Origination. So thus, are defined the Unit-Energy - Vectors, $\overline{R}$ = σ / $\overline{B}$ = σ / J.w^2, which Exist ON the Unit – Space – Monad |AB| ≡ |$\overline{R}$|, and which is {The Energy – Space – Monad |$\overline{R}$| ≡ |AB| ≡ The Existing Universe}.

In Fig-14 are shown the 5-States for angle → θ ⇒ 0ᵉ, 45ᵉ, 90ᵉ, 135ᵉ, 180ᵉ.
1. For angle → θ ⇒ 00ᵉ, $\overline{w}$ ≡ $\overline{B}$, Voltage = 7,593.10 ^{35} V, ↑ On Neutral – Circle
2. For angle → θ ⇒ 45ᵉ, $\overline{w}$ / $\overline{B}$, Voltage < 7,593.10 ^{35} V, < ≠ Neutral – Circle
3. For angle → θ ⇒ 90ᵉ, $\overline{w}$ ⊥ $\overline{B}$, Voltage ≡ 7,593.10 ^{35} V, ⇉ In Neutral - Circle
4. For angle → θ ⇒ 135ᵉ, $\overline{w}$ \ $\overline{B}$, Voltage > 7,593.10 ^{35} V, ≠ > Neutral – Circle
5. For angle → θ ⇒ 180ᵉ, $\overline{w}$ ⊥ $\overline{B}$, Voltage >=7,593.10 ^{35} V, ↑↓ Off Neutral-Circle
6. From Solution-4, The {Energy-Space-Monad |$\overline{R}$| ≡ |AB|} Vanishes in BH-Chaos, where Energy Increases to an Voltage >> 7,593.10 ^{35} V and then motion ≡ Energy between the Two Opposite elements collides them to the MP-Dipole [⊕↔⊖].
7. From Solution-5, The {Energy-Space-Monad |$\overline{R}$| ≡ |AB|} Vanishes in BH-Chaos, & Energy is Quantized to the 2-Constitutes from the $\overline{c}$, Physical-Magnet ⊕ ⇉ ⊖.
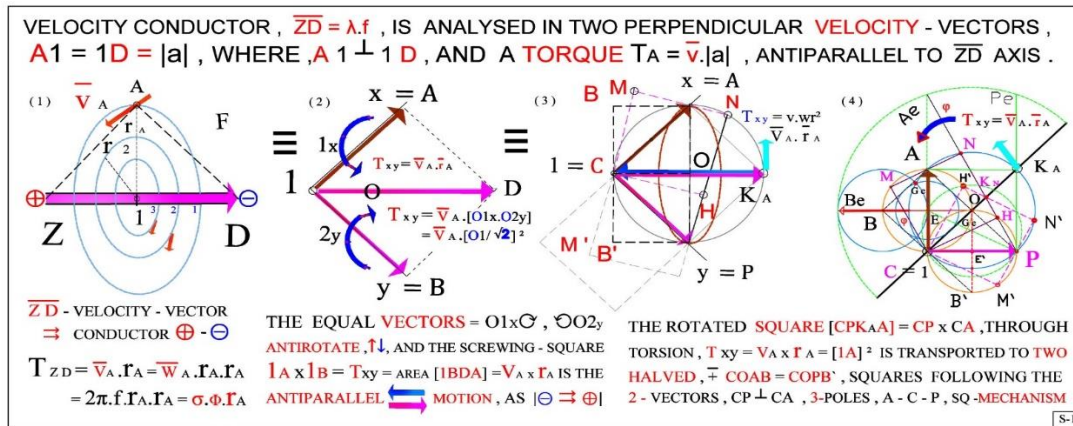
Figure 15: The Stability of Photon as Electromagnetic Wave with the Two frequencies.

The Dual Property of The Simultaneous existence as Electric and as Magnetic Fields in wavelengths, λ_x, λ_y, as Effective Range.which is thrusted through the Newton's Gravitational Force G only, becoming from the *Trigonometry relations* [The Space], $\sin(2\varphi) = \sin(\pi - 2\varphi) = \sin(\frac{\pi}{2} - \varphi)$, and from *Physics* [Energy] $E_x = g$, Maxwel Electric Displacement current $\vartheta D / \vartheta t$ is created from the (c_x, c_y) Vectors motion happening from gravity continuous action, and Producing the Work $W = c_y g$ For Photon {Markos Rotating Method of{2-Vectors 3-Poles Mechanism}which Circles and Squares as Areas Pass from the Point M determined by the Position A_e, and where is such that issues $\pi r^2 = CMNH$ Square then.The Squaring of the circle becomes at the equilibrium - Positions which are from relation $\rightarrow \pi [\frac{CA}{\sqrt{2}}]^2 = CM^2 = |CM`|^2 \leftarrow$ namely The square | CMNH | = square | CM`N`H`|. Because of the Bellow motion then, The Total motion in the Wavelength, λ, corresponds to the angle a = 45 °, meaning that the motion of Space $\equiv$ *The Electric-field*, and Anti-Space $\equiv$ *The Magnetic-field* equilibrium as an Bellow. The two Wings in 90° Type simultaneously oscillate to its 45 ° Bisector -axis, and the Produced Work from *The Electric-field-area* is Stored into *the Conjugate Magnetic-field-area.* The common axis of the two Perpendicular fields, carry the Golden-Ratio *Energy-Surfaces,* and Runs with the same velocity $\bar{c}$ to the direction of the inner motion.

13c. The Epilogus in [89 - 96]
It was proved and elucidated that,

(a) Monad is Quaternion [x + i y] = $\bar{\lambda}$ type, and its Energy is Vector as $\vec{Q}$ = {λ}.X, where X = The Displacement. Since 1 = c. r^3. f_P^2 = constant, so $\rightarrow r^3$. f_P^2 = constant. Since also λ = 2r then r^3. $f_P^2 = \lambda^3$. $f_P^2 = c$, and Energy becomes →Vector $\vec{Q}$ = {λ}.$\sqrt[3]{c/f_P^2}$ ← [E$_1$]

(b) In Mechanics an Energy-Vector is an Conductor $\overrightarrow{AK_A}$ = $|\vec{Q}|_\pm$, and is The Quaternion in Material-Geometry where Zero-Point $0 \equiv \varnothing \equiv \{\oplus+\ominus\}$on where motion $|\vec{Q}|_\pm \equiv \bar{Q}_x$ as an Electric field on AK_A axis and as $\vec{Q}|_\pm \equiv \bar{Q}_y \equiv$ Magnetic field $\perp AK_A$, is Transferred from One Edge Point A, to the Other Edge Point K$_A$ as $\rightarrow \bar{Q}, \bar{Q}_x, \bar{Q}_y \leftarrow$ [E$_2$]

(c) Energy is the Work, The motion, Produced in Energy-monads and for Photon is Equal to $W = 2L = \bar{B}. \bar{w} = r m v = [r. p] = J w^2 \equiv [\bar{k}_x \perp \bar{k}_y]$ where $\bar{k}_x = \bar{k}_y$, in the Conductor $\overrightarrow{AK_A}$ = $2.r \equiv \lambda$ where, λ Is -The -Wavelength and p = m c = The Momentum. [E$_3$]

(d) It was Proved That → Any Diameter D of a circle in the STPL – Circuit, the Three – Poles –Squares-Rotational - System is an Conductor where D = $\overrightarrow{AK_A}$ = $|\vec{Q}|_{\pm}$ = $|\frac{c.\vec{S}}{r^2}|$ = I_E The - Electric-Wave-Intensity, And $\overrightarrow{A \uparrow K_A} \equiv I_M$ is The - Magnetic–Wave Intensity. Their Square -Vectors – Area = $[\overrightarrow{AK_A}]x[\overrightarrow{A \uparrow K_A}]$ = $[\overline{Q}_x \overline{Q}_y]$ = The Energy - Square $\equiv$ CM x CM = CMNH square = on circle (E, EA), and from relation $\bar{v}$ = σ. $\Phi = \frac{F}{A} \Phi$ area A = F / σ = $|CM|^2$ / σ, i.e. Plane-force F = σ. $|CM|^2$, and in Space Volume-Force F = σ. $|CM|^3 \equiv [E_4]$ or $[\overrightarrow{AK_A}]x[\overrightarrow{A \uparrow K_A}]x[D]$ = CMNH x $\overline{Q \barwedge \rightrightarrows}$ = CMNH x $\overline{Q}_{\barwedge \rightrightarrows}$, where $|\overline{Q \barwedge \rightrightarrows}| \equiv \vec{q}$, which is the Energy-Quantum In The Propagating Electromagnetic Wave where $| I_E \perp I_M |$. Since motions $\overline{B}x\overline{w}$, are Constants from (b) and from Poinsot`s solution $w_1^2 + J_2 w_2^2 = a^2$, then Angular velocity-Ellipsoid Polar-Paths are the Parallel circles and Perpendicular to the Angular-Momentum Ellipsoid Nibs. [E_5], [70]

(e) When is found an Obstacle at Point K_A, Then The Particles of Conductor medium Oscillate Perpendicular. This Obstacle at K_A Point, is The Presentation of the, ⊕ constituent and the Absent of ⊖ constituent and so ±, Transverse- Propagating-Wave, Or moving Energy-Vector $|\oplus Q \upuparrows \overrightarrow{AK_A}| = |\updownarrow|$ at Node K_A Is Equal to E-Vector$| \oplus Q \rightrightarrows \overrightarrow{AK_A}| \equiv |\leftrightarrow|$ at Node A, and Energy Volume is Doubled as, 2L = $\overline{B}. \overline{w}$, in $\overline{K_A A}$ Conductor meaning that the meter of Volume is the Duplication of Total Energy L.The Reaction to the motion of Squares $\{|Q_{X=CO} \rightrightarrows| x|Q_{y=CB} \upuparrows|\} \equiv |\overline{Q \barwedge \rightrightarrows}| \equiv [\frac{cS}{r^2}].|\overline{Q \rightrightarrows}|$ is equal to Quantum $\vec{q}$. [E_6]

(f) Any Two Perpendicular Energy-Vectors, $| Q \rightrightarrows_{\overrightarrow{AK_A}} = \leftrightarrow |$, $| Q \upuparrows_{\overrightarrow{AK_A}} = \updownarrow |$ of this Propagating Energy, FORM The Energy-Square, $|\leftrightarrow|.|\updownarrow| \equiv |Q \rightrightarrows|.| Q \upuparrows| \equiv q_0$, on Conductor AK_A and Then Energy-Circular-Prism = $| AK_A |.\{ Q \rightrightarrows_{\overrightarrow{AK_A}} \}.\{ Q \upuparrows_{\overrightarrow{AK_A}} \} \equiv [\overline{Q}_x \overline{Q}_y].|AK_A| = | \leftrightarrow |.|\updownarrow|.|AK_A|$, i.e. An Energy-Circular-Cone which is a Moving Energy -Volume and Because from Cauchy equations of Stresses in three Dimensions, The Energy Stress remains Flat ONLY- WHEN the Plane-Section is a circle [E_2] and The Square becomes circle, *Anti-Quadrature*. Because from Mechanics, The Sphere occupies The Least-Resistance to motion where the Geometrical Square–Cone [CM x CH x$[\overrightarrow{CO} \uparrow]$] is altered to Equivalent Energy- Circular - Cone $[\pi.[\frac{CM}{2}]^2$ (x) $[\overrightarrow{CO} \uparrow]$] and To the Energy Unit -Volume $CO^3.[\overrightarrow{Q \rightrightarrows}] \equiv$ 2.Sphere $\frac{4\pi}{3} r^3$ And To Energy-Sphere Cone $\mathbb{C} = k \pi r^3$, where The Geometry- Cube $[|\leftrightarrow|.|\updownarrow|.|AK_A|]$ = x^3 so becomes The Energy -Sphere – Cone as → k π r³ = x³ ← [E_7]

(g) Since Frequencies f_n are The Quantum of Energy, and Electromagnetic Vectors are always Perpendicular between them as $| F_E \perp F_M |$, so are everywhere in nature from microcosm to macrocosm. Because Gravitational Force exists Beyond Planck`s length therefore the Propagating-Plane-force F_P = σ. $|CM|^2$, is continually Perpendicular to the two Perpendicular constituents of Electromagnetic Vectors as $|F_P \perp F_E \perp F_M |$. Distance is the *Quantum of E-Geometry*, while Material-Point is the Quantum in Physics and in Material – Geometry which is the composition of Opposites and are The Elements in Chemistry and Physics. As in Algebra Zero,0, is the Master-key number for all Positive and Negative numbers because their Sum and multiplication is Zero, *and the same* on coordinate - System, ±, axes pass from zero. [E_8] The Rolling of Positive ⊕, constituent

on the Negative $\ominus$, constituent, creates the Neutral Material Point which Equilibrium. Spin $\overline{B}$, is Its Angular momentum and also the First -Discrete-Energy-monad which occupies *Discrete-Value and Direction*, in contradiction to the Point which is nothing, *Dimensionless* and *without any Direction.* Point-caves Are the Energy-Magnets from which the Quantum of Energy are Generated.

(h) The Space is Quantized as Energy-Caves under the effect of Gravitational-force G, as well in Conductors and this Energy or motion is Quantized as Frequency in Energy- Caves, Or in Conductors, following the Kepler`s First-law of Equal Areas where in equal intervals and in Conductors, is the Electricity or Electromagnetic - Waves. $[E_9]$ Quaternion $[(+)\cup\cup(-)]$ is a Quantum-Mould for Space $[(+)(-)]$ and Energy $\equiv$ motion $\equiv$ Force x Displacement as $[\cup\cup$ or $\uparrow\leftrightarrow\downarrow] \equiv$ Standing Box $B_Q \equiv$ An Material Point which carries the Principal Stress σ between Positions A (+), B (-), and σ, is the *Centripetal -acceleration* of minimum Energy becoming from the in-Storage AB acceleration and which is equal to the *Gravity* g. From Quaternion Quantum Mould $[r + \overline{v} \nabla i]^{1/w} = e^{-i.(\pi/2+2k\pi).w}$ is created the min-Space $\equiv$ cave r = 1, 07.10^{-7} m and the min-Energy $\equiv \overline{v} = w\,r = 2\pi r\,f$, as frequency f_m = 2,839844. 10^{10} H. G Pushes the $\rightarrow$ min-Quantum-Energy $\equiv$ motion σ_E, into the Inscribed-Cave $\pi. [\frac{CM}{2}]^2 \equiv \pi.EA^2$. Gravitational-force G effecting on light velocity $\overline{c}$ creates the Electron-charge $\overline{q}$ and Electron $\overline{e}$, while acting on Planck`s-cave on the Gravity $g \equiv \pm \sigma$, as $G = g\,k = k_E\,g = k_L\,\sigma = g.g_L\,k_L$, and $\overline{c}$ effecting on the min-Planck-cave in L_P formulates Hydrogen-cave H with its electron as H_e. $[E_{10}]$, [109]

(i) The Physical-Notion of The Duplication of the Cube, in The Quadrature Physical Energy Mould Shows that Nature follows the Geometry-Rules in Order to Exist as Space and as Energy, which is motion of The,+, Constituent to The, -, Constituent. This motion is conserved by Propagating in caves either for Standing $\equiv | \frac{v}{\pi^2.r^4_n} |.\boxed{\overline{B}_n}$ or for moving caves as this is the Duality-Photon $\rightarrow \overline{v}. [\boxed{\overline{f}_n} + f_n] \equiv | \frac{v}{\pi^2.r^4_n} |.\boxed{\overline{B}_n} + | \overline{c} | f_n$.Material-Geometry meters for Quantum-length is the Quaternion $\equiv$ Dipole $\equiv$ The Two-Points joint with motion between them,while for The Quantum-Surface is The Unit circle $\pi.r^2 = \pi$, and is r =Unit 1. For the Quantum-Volumes, is the. Unit Volume Sphere $\frac{4}{3}\pi.r^3 = [\frac{4.r}{3}] (\pi.r^2) = \frac{4\pi}{3}$, for r = Unit 1. The Unit-Volume is formulated from The Inscribed-Square of Unit Circle-Side CO = CB = 1 $/\sqrt{2}$, and when Placed The-Unit-Energy-magnitude OC on Square CO x CO then is Unit-Volume $[CO \times CO \times \overrightarrow{CO} \uparrow]$. This Unit-Volume when Placed in, The Three - Poles -Squares-Rotating-System, Then at Point K_N, Unit Volume $[CO \times CO \times [\overrightarrow{CO} \uparrow]$ becomes $[CM \times CH] \times \overrightarrow{CH} \uparrow]$ = Circular-Cone $[\pi.(\frac{CB}{\sqrt{2}})^2]. [\overrightarrow{CO} \uparrow]$ = Unit - Sphere $\frac{4\pi}{3} r^3$, Equal to Quantum of Energy. Because Physical-Magnet $\oplus \rightrightarrows \ominus$ compels Force $\overline{Q} \rightrightarrows \overrightarrow{AK_A}$, Between A and K_A Points and Then Unit-Sphere $\frac{4\pi}{3} r^3$ becomes The Double - Unit-Sphere $2.\{\frac{4\pi}{3} r^3\}$ and because the Energy Square $[CAK_AP]$ is Double that the Unit Square $|CB \times CO|$, then Force $\overline{Q} \rightrightarrows \overrightarrow{AK_A}$ is The Pivot of Spinning indicating $\pm \overline{B} \equiv \overline{S}$, in all Energy monads.$[E_{11}]$

(j) Gravity and Antigravity are the two Halve - Spins from the Angular Momentum $\overline{B} \equiv \pm$ Work created from the velocity vector $\overline{c}$ by Rotating $\cup$ on Planck`s Cave Diameter. $[E_{12}]$ This Property, $\pm \overline{B} \equiv \overline{S}$, is in all Energy monads and when Applied on Initial, $\oplus \rightrightarrows \ominus$,

Answers to the 3D-Stability of All Elementary-Particles and Cosmology Equilibrium. Gravity $+$ g $\equiv$ The Vector of Angular-Momentum $\overline{B} \equiv +$ Spin $\equiv \downarrow\circlearrowleft \equiv$ The Work stored in the [4-1-3] Semi circle of the, $\overline{r}$ - $\overline{c}$ Vectors circle-Surface, Produced from the Gravitational-Force, G, as ACTING into the -Planck- Cave, AND on the light Velocity Vector of, $+ \downarrow \overline{c}$ *Direction*. [107] Antigravity $-$ g $\equiv$ The Vector of Angular -Momentum $\overline{B} \equiv$ $-$ Spin $\equiv \uparrow\circlearrowleft \equiv$ The Work stored in the complementary [4-2-3] Semi circle of the, $\overline{r}$ - $\overline{c}$ Vectors circle Surface which is Produced from the Gravitational-Force G, as ACTING into the-Planck-Cave, AND on the light Velocity Vector of The, $- \uparrow \overline{c}$ *Direction*.

(k) The Black-Holes exist as Parallel origination either as $\Rightarrow$ Planar Black-Holes or $\Rightarrow$ Atoms - Black – Holes, when G - Force is ACTING On the -Planck – Cave. $[E_{13}]$ Momentum $\overline{B}$ & $\overline{w}$, as Real $\equiv$ The EXISTING - UNIVERSE as is the Real Objective Reality $|\overline{s}| \equiv$ The Numeric Vector-value of The Material-Point $[\oplus, r, \ominus]$ in [PNS] $\equiv$ The Work stored in POLHODE - CONE of the $|\overline{OS}|$ Rolling Nib -Vector Produced from the Eternal CENTRIPETAL - FORCE, F_C AS THE Newton`s ACTION in the Planck`s - Cave, AND from the $\overline{B}$ Angular Momentum in the, $+ \downarrow \overline{B}$, *Direction*. The Real Type is applied on all different Monads and their Compounds Monads. [109] Momentum $\overline{B}$ & $\overline{w}$, as Imaginary $\equiv$ The BLACK - HOLES as is their Real Objective Reality $\pm \overline{D}.i \equiv s \Rightarrow$ The Numeric Amplitude-Vector-value of Material-Point $[\oplus, r, \ominus]$ in [PNS] and The Imaginary - $\overline{D}.i \equiv$ CENTRIPETAL - FORCE $F_C \equiv$ The Wave Amplitude -value $\equiv$ The Work stored in the HERPOLHODE CONE of the $|\overline{OB}|$ Rotating $\overline{B}$ -Vector and also Produced from the Eternal CENTRIPETAL - FORCE F_C, AS THE Newton`s REACTION into the Planck`s - Cave AND from the $\overline{B}$ Angular Momentum in, $- \uparrow \overline{B}$ *Direction*.

(l) In case of Points A, B, C being on a Sphere then [STPL] becomes a Cylinder as this is the Angular-Momentum $\overline{B} = \frac{2L}{\overline{w}} = \frac{2L}{2\pi f} = [\frac{2L}{2\pi}].[\frac{1}{f}] = \frac{\text{Constant}}{2\pi} [\frac{1}{f_m}] = $ SPIN [89]

THE ORIGINATION OF THE FUNDAMENTAL PARTICLES
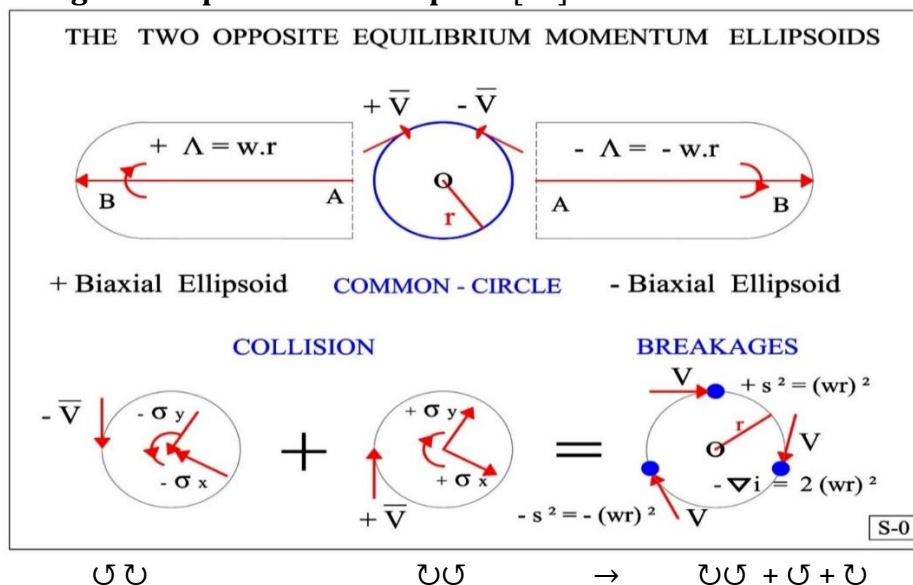### 1d. The Balancing of the Space and Anti-Space. [64]

Figure 16: The work W, of Two-Quaternion-monads $\vec{z} = (s + \overline{v}.\nabla i) \equiv \overline{AB} \equiv \overline{w}$ is the Action of any two Tangential & Opposite Equilibrium-Dipole $[\oplus\leftrightarrow\ominus]$ with v $= \overline{w}.r.$

For Quaternion Actions exists the square law for both Real and Imaginary Part, as $\vec{z} * \vec{z}$ = (s + $\bar{v}.\nabla i)^2$ = s^2 +$[\bar{v}.\nabla]^2$ +2.$s\bar{v}.\nabla i$ = $s^2 - \bar{v}^2 \pm 2.s\ \bar{v}$ = $|s|^2 -|\bar{s}|^2 \pm 2.|s|.|\bar{s}|$, for $|\bar{v}|$ = s Vorticities ± Λ (Rotating Energy), Becomes from the Collision on Common-circle and from the Thrust on the Velocity-Breakages.The work is, W = [n. P] = [λ.Λ], where λ = Displacement of A to B and it is a scalar magnitude called wavelength of dipole AB.

Λ = the amount of Rotation on Dipole AB (this is Angular Momentum and it is a vector). Momentum ± $\bar{Λ}$ = r.m.v = r m wr = $mr^2.\bar{w}$, where $\bar{w}$ is the angular velocity (Spin) which maps velocity vector $\bar{v}$ on the Perpendicular to ± $\bar{Λ}$ Plane with two components $\bar{v}_E \perp \bar{v}_B$. The Tangential velocity $\bar{v}_E$ = wr, is the quaternion $\bar{v}_E$ = w r = $\bar{z}$ = [s + $\bar{v}.\nabla i$] where s = $\bar{v}_E$ = $|r.\bar{w}|$ and $\bar{v}.\nabla i$ = $|\bar{w} \times \bar{r}|$. 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 → 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, 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 velocity vectors, $\bar{v}, -\bar{v}$, collide.This collision of the two Opposite Velocity-Vectors is the Physical-Action (Thrust) of the Two-Quaternion and their Action is, (s + $\bar{v}.\nabla i$)(©)(s + $\bar{v}.\nabla i$) = [s + $\bar{v}.\nabla i$] ^{2} = s^2 + $|\bar{v}|^2.\nabla i^2$ + $2|s|.|\bar{v}|.\nabla i$ = s^2 - $|\bar{v}|^2$ + $2|s|.|\bar{w} r|.\nabla i$ = s^2 - $|\bar{v}|^2$ + $[2\bar{w}].|s| |r|.\nabla i$, where, s^2 = $(r w)^2$ → Is the Real-Part of the New-Quaternion, - $|\bar{v}|^2$ = $|\bar{w} \times \bar{r}|^2$ = - $(w.r)^2$ → The always Negative-Anti-Space (a vector $\perp$ to w r Plane),[2 $\bar{w}$].|s|.|$\bar{r}.\nabla i$ = 2w.(sr).∇i → The double Angular-velocity-Term, and for the PNS Space where |s| = $|\bar{v}|^2$ then s^2 = $(w.r)^2 \equiv \oplus \equiv s^2$ = + Charge - $|\bar{v}|^2$ = $|\bar{w}x\bar{r}|^2$ = - $(w.r)^2 \equiv \ominus \equiv - s^2$ = - Charge $[2\bar{w}].|\bar{v}||.\bar{r}.\nabla i$ = 2 $|\bar{v}|^2$ = 2 $(\bar{w}.r) \equiv 2[\oplus \leftrightarrow \ominus] \equiv 2s^2$ = 0 Charge i.e. For the Equilibrium-Recovery (maybe a surface cylinder with 2r diameter), Fig-16-17

and because velocity vector is on the circumference the infinite Breakages, (the only row material identify) with Points A, B, C (of Extreme -Triangles ABC of Space $\oplus \equiv$ [ABC], and with Points K_A, K_B, K_C, of the Extreme Triangle, $K_A K_B K_C$, of $\ominus \equiv$ Anti-Space) all on the same circumference of the prior formulation and are Rotated with the same Angular velocity vector $\bar{w}$. The inversely directionally Rotated Energy ± Λ equilibrium into the Common-circle, so the $\oplus$ - Spaces and $\ominus$ - Anti-Spaces meet in this common circle giving The Thrust $\equiv [\oplus \rightarrow \ominus]$, to the Breakages of each other.

2d. The [STPL] line is an Extreme - Spaces – Physical -Originating –Mechanism

Extreme-Spaces (the Extreme Space-Triangles ABC$\equiv \oplus$) meet Anti-Spaces (the Extreme Anti-Space-Triangles, $K_A K_B K_C \equiv \ominus$) through The Only-Gateway which is the CircularlyCharged +, 0, -, or [$\oplus \oslash \ominus$],[$\ominus \oslash \oplus$],[$\oplus \ominus \oslash$] Formulation which is a Physical Geometrical formation - Mechanism called [STPL] line. Figures-16-17-18 → The [STPL] - line is a Physical - Mechanism, In-circle $\Rightarrow$ Triangle $\Rightarrow$ Ex-circle $\Rightarrow$ Ex - Triangle consisted with the Three Spaces, On which the Three Breakages [s^2 = $\oplus$, $2s^2$ = $\oslash$, - s^2 = $\ominus$] are Circularly-Charged On the Three – Extreme - Triangles {A B C}, {$K_A K_B K_C$}, {$A_E B_E C_E$} $\leftarrow$ Producing The Energy-Quantities ± Q_{p-p}. This Circular-Charge from Breakages on The-Three -Triangles is the THRUST upon The Energy-Quantity Produced, for Each needed Circular Charge, To Shake Off Quantity Q_{p-p}. The 3-Circular Charges correspond to the 3-Phase Rotors Produce the 3-Phase Physical-Current, Since Common Circle exists on their Common - Sphere, THEN the Infinite Straight- lines, Launch The

E - Quantity Q_{p-p} OFF the Fundamental Particles to all Universe and INTO The Planck`s Confinement Only. i.e. The Physical-Three-Phase- STPL Mechanism is the only Absolute-System [A] On which circularly exist the Relative-System [R] ≡ [⊕ ∅ ⊖] ↻ [⊖ ∅ ⊕] ↻ [⊕ ⊖ ∅] of The three constituents [⊕ ∅ ⊖], which Produces The Fundamental Particles and The Existing Objectivity as [A] ≡ [R].γ, where γ = sec φ = $[\frac{OD_A}{AD_A}]$ = ± $[\frac{1}{\sqrt{1-(v/c)^2}}]$ = $[\frac{c}{\sqrt{c^2-v^2}}]$ The material Angle φ = $\frac{v}{\sqrt{c^2-r^2}}$, and {A≡ D_A- O}≡{R≡ D_A-P_A}. γ, or |A| ≡ |R|. γ

Figure 17: The Physical Three – Phase - Mechanism, Producing The Fundamental Particles and the Primary Forces. The Absolute System A ≡ R. γ = R. sec φ. [97]

In –Fig. ABC is any Right-angled Triangle at, A = (The-Space), $K_A K_B K_C$ = Triangle is the (Anti-Space),, $A_E B_E C_E$ = Triangle is the (Sub-Space) respectively.The Instaneous Pole P of Rotation is off the Circle of diameter |BC|. The Poles of Rotation lie on {D_A- P_A} Reference System. Reference System {D_A- P_A} ≡ [R] (x', y', z', t') *moves with velocity,$\overline{v}$, Parallel to,* x - x', *Axis with respect to the Fixed and* Absolute System {D_A- O} ≡ [S]- (x, y, z, t).

The Geometrical expression of Lorentz factor γ = $\frac{c}{v}$, *is the* sec φ = γ = OD_A : AD_A = ± 1 / [√1– (v/c) ^{2}] = c / [$\sqrt{c^2 – v^2}$], which is the Conchoidal of Nicomedes {s = a + b. sec φ} and which acquires the material Angle, φ = $\frac{v}{\sqrt{c^2-r^2}}$, i.e. issues |A| ≡ |R|. γ. The Euclidean Geometry is the SPRING, for the Geometrical Relative -Velocities.

When the Points [A, B, C], [A_E, B_E, C_E], [K_A, K_B, K_C] *are Applied on the three lines* ($K_A K_B$, $K_B K_C, K_C K_A$), *then the* SIX *Pairs of the corresponding lines, extended are concurrent at Points* P_A, P_B, P_C *for the Triple Pairs of lines* (The Pascal`s Perspectivity of Points in Euclidean Geometry), [$AA_E, BC_E, CB_E$], [$BB_E, CA_E, AC_E$], [$CC_E, AB_E, BA_E$] *and at Points* $D_A$, $D_B$, $D_C$ *for the Triple Pairs of Lines* [$K_B K_C$, BC, $B_E C_E$], [$K_A K_C$,AC,$A_E C_E$] and [$K_A K_B$, AB, $A_E B_E$], (Desargues`s Perspectivity of Points in Euclidean Geometry) *and all the 18 common Points lie on a Straight line The* ⇒ STPL Mechanism

This Mechanism Stabilizes the Nucleus Forces for the{⊕ - Space [A B C]} and for the {⊖ - Anti-Space [K_A K_B K_C]} and this succeeded by *The Pascal`s –launched caves* r through the STPL

Circuit of the Ptolemy`s and the Ceba`s Geometry theorem Fig-24-25 for the Vector-Forces which are, *Circularly* and *Diagonally Equilibrium*.i.e. → STPL is The *In-Sphere, Tetrahedron-Cube, Out-Sphere* Physical Mechanism ← For its 27-Conductors ≡ Electric - Magnetic Fields, Space-Energy CPT is invariant. The Explanation of The Absolute and Relative Motion. Fig – 17

Because Properties In and On [STPL] line, are relative to the only one Equilibrium and also Absolute System ± Λ = r.m$\bar{v}$ = r.m.$\bar{w}$.r = mr^2.$\bar{w}$, so exists that what is called Relativity. Absolute System let it be the [A] ≡ {D_A- O} ≡ The STPL mechanism, and as Relative System (Reference, Affine) [R] ≡ {D_A- O}

The Absolute motion happens on [A] ≡ {D_A- O} and on [R] ≡{D_A-P_A} of the two Systems: It was shown, that in {D_A- O},(x,y,z, t), System $\bar{c}$, $\bar{v}$, vectors are isochrones i.e. Period T = L / V = 2πR/V = 2π / [c/r_c] = 2π/[v/r_c] → c/r_c = v/r_v → c.r_v= v. r_c,where r_v, r_c are the radius of their intrinsic rolling circles. This relation is Geometrically expressed as, sec φ = O D_A : A D_A = γ =$\frac{c}{v}$= ± 1 / [$\sqrt{1-(v/c)^2}$] = c / [$\sqrt{c^2 – v^2}$], and it is a Geometrical Cycloid Property equal to Lorentz`s, γ, factor. The Newton`s laws are true into the Reference System [R] ≡ {D_A- P_A} by, Considering {D_A- O},(x,y,z, t), as the Fixed frame [A] of the coordinate System in the Gravity cave (d = 2r), and Point A= (x, y, z) is fixed on circle (O,OA) which is Rotating with a velocity $\bar{v}$ = $\bar{w}$r, of angular velocity $\bar{w}$ = 2π /T = 2πf, in where Period of Rotation T, is then also constant.

Since the acceleration,a, for a Quaternion z = (s + $\bar{v}$.∇i) is a = [d^2z/dt^2] = (ds/dt.$\bar{v}$.∇i) + s. d($\bar{v}$.∇i)/dt = 0 + s. d(w r)/dt = 0 + 0, *and this because $\bar{w}$ is constant for both* therefore velocity $\bar{v}$ = constant also, i.e. → *The Centrifugal velocity of the Absolute System* [A] *is any constant, $\bar{c}$, and this because Angular velocity, $\bar{w}$, is constant also and thus, is not needed to accept A priori this constancy of velocity $\bar{c}$ = 0 → $\bar{v}$ → ∞ on circle* (O, OA) and *to exist In Frame*, (It has been proved that this velocity $\bar{v}$ ≡ ± σ) so, Automatically *is defined the conversion factor t = time,* between the conventional time units (second) and the length units (meter = A.D_A) or as $\bar{c}$. r_v = $\bar{v}$. r_c, → $\bar{c}$ (v)(T/2π) = $\bar{v}$(c).(T/2π) → $\bar{c}$(v)/w = $\bar{v}$(c) / w, which is happening with the same w, without setting any restrictions, in contradiction to the General Relativity which is an axiom A priori

This is the why that the conversion factor, t = time, has not any essence in all universe but it is only a meter of changes in all Relative Systems. STPL Mechanism is the only Absolute System On which circularly exist [⊕ ∅ ⊖],[⊖ ∅ ⊕],[⊕ ⊖ ∅], the three constituents, [⊕ ∅ ⊖], and Originates this Existing - Objective - Cosmos.

This circularity of the constitutes exist because of their Natural frequency of vibrations. Because [STPL] line of the fixed frame becomes from this System [A], then this relative circularly exist the *Relative-System* [R] ≡ [⊕ ∅ ⊖] ↻ [⊖ ∅ ⊕] ↻ [⊕ ⊖ ∅] of The three constituents [⊕ ∅ ⊖], which Produces The Fundamental Particles and The Existing Objectivity as [A] ≡ [R].γ, where γ = sec φ = [$\frac{OD_A}{AD_A}$] = ± [$\frac{1}{\sqrt{1-(v/c)^2}}$] = [$\frac{c}{\sqrt{c^2-v^2}}$] The material Angle φ = $\frac{v}{\sqrt{c^2-r^2}}$, and {A≡ D_A- O}≡{R≡ D_A-P_A}. γ, or |A| ≡ |R|. γ
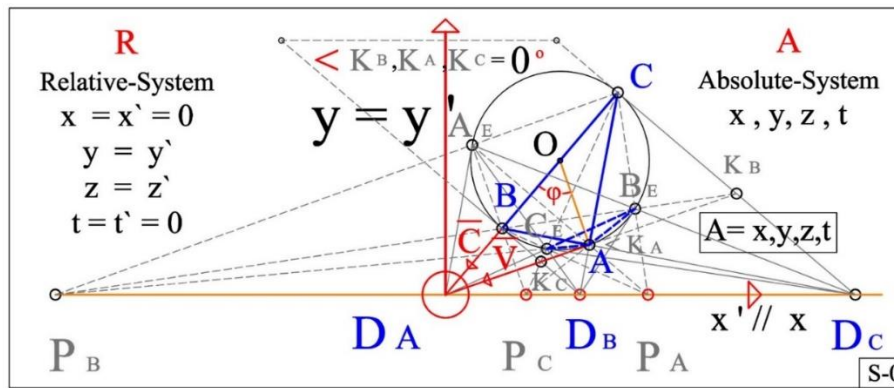
Figure 17: The Physical Three – Phase - Mechanism, Producing The Fundamental Particles and the Primary Forces. The Absolute System A ≡ R. γ = R. sec φ. [97]

In –Fig. ABC is any Right-angled Triangle at, A = (The-Space), $K_A K_B K_C$ = Triangle is the (Anti-Space),, $A_E B_E C_E$ = Triangle is the (Sub-Space) respectively.The Instaneous Pole P of Rotation is off the Circle of diameter |BC|. The Poles of Rotation lie on{D_A- P_A} Reference System. Reference System {D_A- P_A} ≡ [R] (x', y', z', t') *moves with velocity,$\bar{v}$, Parallel to,* x - x', *Axis with respect to the Fixed and* Absolute System {D_A- O} ≡ [S]-(x, y, z, t). *The Geometrical expression of Lorentz factor* $\gamma = \frac{c}{v}$, *is the* sec φ = γ = OD_A : AD_A = ± 1 / [$\sqrt{1- (v/c)^2}$] = c / [$\sqrt{c^2 - v^2}$], which is the Conchoidal of Nicomedes {s = a + b. sec φ} and which acquires the material Angle, φ = $\frac{v}{\sqrt{c^2-r^2}}$, i.e. issues |A| ≡ |R|. γ

The Euclidean Geometry is the SPRING, for the Geometrical Relative -Velocities. When the Points [A, B, C], [A_E, B_E, C_E], [K_A, K_B, K_C] *are Applied on the three lines* ($K_A K_B$, $K_B K_C$, $K_C K_A$), *then the* SIX *Pairs of the corresponding lines, extended are concurrent at Points* P_A, P_B, P_C *for the Triple Pairs of lines* (The Pascal`s Perspectivity of Points in Euclidean Geometry), [$AA_E$, $BC_E$, $CB_E$], [$BB_E$, $CA_E$, $AC_E$], [$CC_E$, $AB_E$, $BA_E$] *and at Points* $D_A$, $D_B$, $D_C$ *for the Triple Pairs of Lines* [$K_B K_C$, BC, $B_E C_E$], [$K_A K_C$,AC,$A_E C_E$] and [$K_A K_B$, AB, $A_E B_E$], (Desargues`s Perspectivity of Points in Euclidean Geometry) *and all the 18 common Points lie on a Straight line The* ⇒ STPL Mechanism This Mechanism Stabilizes the Nucleus Forces for the{⊕ - Space [A B C]} and for the {⊖ - Anti-Space [K_A K_B K_C]} and this succeeded by *The Pascal`s* –launched caves r through the STPL Circuit of the Ptolemy`s and the Ceba`s Geometry theorem Fig-24-25 for the Vector-Forces which are, *Circularly* and *Diagonally Equilibrium.*i.e. → STPL is The *In-Sphere, Tetrahedron-Cube, Out-Sphere* Physical Mechanism ← For its 27-Conductors ≡ Electric - Magnetic Fields, Space-Energy CPT is invariant. The Explanation of The Absolute and Relative Motion.. Fig – 17

Because Properties In and On [STPL] line, are relative to the only one Equilibrium and also Absolute System ± Λ = r.m$\bar{v}$ = r.m.$\bar{w}$.r = mr^2.$\bar{w}$, so exists that what is called Relativity. Absolute System let it be the [A] ≡ {D_A- O} ≡ The STPL mechanism, and as Relative System (Reference, Affine) [R] ≡ {D_A- O}

The Absolute motion happens on [A] ≡ {D_A- O} and on [R] ≡{D_A-P_A} of the two Systems: It was shown, that in {D_A- O},(x,y,z, t), System $\bar{c}$, $\bar{v}$, vectors are isochrones i.e. Period T = L / V = 2πR/V = 2π / [c/r_c] = 2π/[v/r_c] → c/r_c = v/r_v → c.r_v= v. r_c,where r_v, r_c are the radius of their intrinsic

rolling circles. This relation is Geometrically expressed as, $\sec \varphi = O\, D_A : A\, D_A = \gamma = \frac{c}{v} = \pm 1 /$ $[\sqrt{1-(v/c)^2}] = c / [\sqrt{c^2 - v^2}]$, and it is a Geometrical Cycloid Property equal to Lorentz`s, $\gamma$, factor. The Newton`s laws are true into the Reference System $[R] \equiv \{D_A - P_A\}$ by, Considering $\{D_A - O\}, (x,y,z, t)$, as the Fixed frame $[A]$ of the coordinate System in the Gravity cave $(d = 2r)$, and Point $A = (x, y, z)$ is fixed on circle (O, OA) which is Rotating with a velocity $\bar{v} = \overline{w}\, r$, of angular velocity $\overline{w} = 2\pi /T = 2\pi f$, in where Period of Rotation T, is then also constant.

Since the acceleration, a, for a Quaternion $z = (s + \bar{v}.\nabla i)$ is a $= [d^2 z/dt^2] = (ds/dt.\bar{v}.\nabla i) + s.\, d(\bar{v}.\nabla i)/dt = 0 + s.\, d(w\, r)/dt = 0 + 0$, *and this because $\overline{w}$ is constant for both* therefore velocity $\bar{v}$ = constant also, i.e. → *The Centrifugal velocity of the Absolute System [A] is any constant, $\bar{c}$, and this because Angular velocity, $\overline{w}$, is constant also and thus, is not needed to accept. A priori this constancy of velocity $\bar{c} = 0 \to \bar{v} \to \infty$ on circle (O, OA) and to exist In Frame*, (It has been proved that this velocity $\bar{v} \equiv \pm \sigma$) so,

Automatically *is defined the conversion factor t = time,* between the conventional time units (second) and the length units (meter = $A.D_A$) or as $\bar{c}.\, r_v = \bar{v}.\, r_c, \to \bar{c}\, (v)(T/2\pi) = \bar{v}(c).(T/2\pi) \to \bar{c}(v)/w = \bar{v}(c) / w$, which is happening with the same w, without setting any restrictions, in contradiction to the General Relativity which is an axiom A priori.

This is the why that the conversion factor, t = time, has not any essence in all universe but it is only a meter of changes in all Relative Systems. STPL Mechanism is the only Absolute System On which circularly exist $[\oplus \varnothing \ominus], [\ominus \varnothing \oplus], [\oplus \ominus \varnothing]$, the three constituents, $[\oplus \varnothing \ominus]$, and Originates this Existing - Objective - Cosmos. This circularity of the constitutes exist because of their Natural frequency of vibrations. Because [STPL] line of the fixed frame becomes from this System [A], then this relative Frame [R] is common to the fixed one (common D_A) and let it be $[R] \equiv (x', y', z', t')$.

From figure, $\sin \varphi = (\bar{v} / \bar{c})$, meaning that the Relative System, $[R] \equiv (x', y', z', t')$, (the Affine Frame) is the Projection of Absolute Frame $[A] \equiv \{D_A - O\} - (x, y, z, t)$ where exists as the Simultaneity for all motions where issues, $[R] \equiv \{D_A - A\} \equiv [(x', y', z', t')], [A] \equiv \{D_A - O\} \equiv (x, y, z, t) = [R].\gamma \equiv (x', y', z', t'). \gamma$

Considering Point D_A as the common center and [STPL] as the x-x axis of the two Systems, then becomes $D_A (x, y=y', z = z', t)$ and for all linear Systems $D_A (x', y'= y, z'= z, t')$

This Specific state of constancy, i.e., the Centrifugal velocity of Absolute System [A] to be a constant, $\bar{c}$, and the rectilinear motion with respect to one another defines the natural Inertial frames, and because of uniformity of Space and motion, therefore occupies the same meter for their changes, (i.e. the Time).

Since also Points O, A remove to Point D_A isochrones by their intrinsic Property motion, which is → their wavelengths are a Stationary wave in cycloid ← following Lorentz`s factor, γ, then this following, happens also to all Frames which make this motion, and so issues for all the relation $\{D_A - O\} = \gamma.\{D_A - A\}$. Fig-3

On this Relative System $D_A(x', y'=y, z'=z, t`)$ are conveyed, the Breakages $[\pm (wr)^2, 2(wr)^2]$ of (O,OA) circle after the colliding with the rotating velocity $\bar{v} = \bar{w}.r$ of the [A] System, and are the Fundamental Particles, Fermions and Bosons, or by escaping consisting the Rest Field and Gravity, or Dark matter and Dark Energy as analytically was shown.[39]

The Angular-Momentum Ellipsoid Nibs on →{Herpolhode and Polhode Ellipsoids}. In any Rotational motion, $\bar{B} \times \bar{w}$ are Constants and The Angular-velocity-vector $\bar{w}$, describes the Ellipsoid of Angular Velocity and its nib describes a Cone of which Plane-Base is Fixed. Simultaneously. The Angular-Momentum $\bar{B}$ describes the Ellipsoid of Angular Momentum and its nib describes a Cone also of which Plane-Base is also Fixed. The Nib of Angular -velocity-vector, $\bar{w}$, describes on the Tangential-Plane of the Angular-Momentum Ellipsoid, the Polhode, while The Nib of Angular-Momentum $\bar{B}$, describes on the Tangential-Plane, of the Angular – Velocity - Ellipsoid, the Herpolhode. or The Fixed Tangential-Planes on $\bar{w}$, $\bar{B}$ nibs which are alternately Perpendicular to $\bar{B}$, and $\bar{w}$, common Central Axes of Rotation, or The *Angular-Momentum Ellipsoid Nibs, in* Herpolhode *and on* Polhode *Ellipsoids* as → Electro magnetic Fields ← and which are Space-Energy CPT invariants. The moving Energy-Vector is $|\oplus Q \upuparrows \overrightarrow{AK_A}| = |\updownarrow|$ →{The Electron-Unit-Charge}.

Remarks
Material Point $A \equiv \pm |(\bar{w}.r)^2|$ of the Fixed System $\{D_A - O\}$ travels with velocity $\bar{v}$ at Point D_A, so geometrical distance $A.D_A$ in the Relative System $[R] \equiv \{D_A - P_A\}$ is $A.D_A = x' + \bar{v} t'$, and because of the Isochrones motion in the Fixed System $[A] \equiv \{D_A - O\}$, and then holds, $x = (x' + \bar{v}.t').\gamma$ or $x = (x' + \bar{v}.t').\gamma \equiv [x' + \bar{v}.t'] / [\sqrt{1-(v/c)^2}]$,,,,(a)

Inversely, by using (a), where $[A] \equiv \{D_A - A\} \equiv \{D_A - O\}/ \gamma$, then if Material Point A of the Fixed - System $\{D_A - O\}$ travels with velocity $\bar{v}$ at Point D_A, where then the geometrical distance AD_A in the Fixed System is,
$[A] \equiv \{D_A - O\}$ is → $A.D_A = x - \bar{v}.t$ and in the Relative System,
$[R] \equiv \{D_A - P_A\}$ is → $x' = (x-v t).\gamma = [x-v t] : [\sqrt{1 - (v/c)^2}]$ ......(b) Fig-17

Because Gravitational Force is equal to → the Geometric-Resultant of the light-velocity c, acting on Electron-Unit-Charge $\bar{q}$ ← or is, $G = c \sqrt{2} \bar{q}$, then Electron-Charge is, $\bar{q} = \frac{G}{c \sqrt{2}} = \frac{6,680561.10^{-11}}{1,41429.[2,9979346.10^{8}]} = 1,58.10^{-19}$ Coulomb, which is the known Coulomb`s charge Quantity. From $g_L, k_L$ Universal constants the Newton`s Gravitational constant Force $G \equiv g.k_E \equiv g.[g_L k_L]$ $\equiv [\frac{T^2 P}{a^3}].[g_L k_L] \equiv 9,808238* 6,8116.10^{-12} \equiv 6,68056.10^{-11} \frac{m^3}{Ns^2}$.

The in-depth Position of electrons allows to the Work Produced in Prior Phase - Areas as Golden Ratio Pattern, to be Stored in the Next. Energy = motion $/ T \equiv (\frac{v}{2\pi r}). [\sigma + \sigma \Phi] = \bar{v}. [\frac{\sigma}{2\pi r} + \frac{\sigma\Phi}{2\pi r}] \equiv \bar{v}. [.\overline{f_n}] + f_n] \equiv$ Moving - Storage $\to[\bar{v}.\overline{f_n}] \leftarrow +$ Moving-Frequency $\to [\bar{v}.f_n] \leftarrow \equiv$ The Material-Point. Fig-8. i.e. The Energy produced in Photon-Cave is consisted of Two-moving-Storages, that travel <u>as Wave</u> $[\bar{v}.f_n] \to[\bar{v}.\overline{f_n}] \to [\bar{v} = \bar{c} = \lambda\frac{f}{\Phi}] \to [S \equiv$ EM-R $\equiv f_{1=N}, f_2, f_3, f_D,, f_n = w^2]$, and <u>as</u>

$\underline{Particle} \rightarrow [f_1 = (E^2 + H^2) = n\frac{(1+\sqrt{5})\sigma}{2\pi r} = \frac{n\overline{B}}{\pi^2\ r^4}] \rightarrow \{W \equiv EM\text{-}R \equiv [\varepsilon E^2 + \mu B^2] = 2.\lambda c.\sin.2\varphi\}$ and is $\underline{The}$ $\underline{Duality}$ of the Energy-Storage $S \equiv \{\boxed{[\oplus \leftarrow\ r\ \rightarrow \ominus]} + \text{Motion M. [87-89]}$

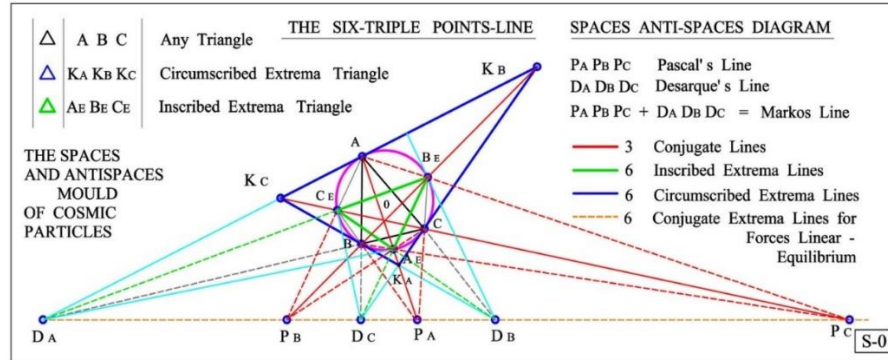## 3d. The Positive Breakage Quantity for, Leptons and Quarks

Figure 18: The, STPL, Mechanism is the Generator of the Cosmic-Particles.

The Velocity Thrust ($\overline{v} = \overline{w}.r$) On Breakages $[s^2, - |\overline{v}|^2, [2]\ \overline{w}.|s|\ |r| = 2\ [(\overline{w}.r)^2]$ Produces Particles $\rightarrow \overline{w}^{\ 3}.|\ \overline{r}|^3$. [1 - 1 + 2] $\leftarrow$ The Magnitude $(w\ r)^{\ 3}$ is a Positive-Scalar magnitude with Positive or Zero Electric-charge and Spin ½, and The Breakage $[(w\ r)]^2$, Is a Positive - Scalar - Magnitude with Positive or Zero Electric-Charge and Spin ½. From [Fig-18] $\rightarrow$

1. Breakage $(w.\ r)^{\ 2}$ being on Points A, A_E collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at Point D_A, P_A forming Leptons $\rightarrow v_{\ e}$, e and Quarks $\rightarrow$ u, d
2. Breakage $(w\ r)^{\ 2}$ being on Points B, B_E collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at Point D_B, P_B forming Leptons $\rightarrow v_{\ \mu}$, μ and Quarks $\rightarrow$ c, s
3. Breakage $(w\ r)^{\ 2}$ being on Points C, C_E, collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at point D_C, P_C forming Leptons $\rightarrow v_{\ \tau}$, τ and Quarks $\rightarrow$ t, b
   The Breakage - $|(\overline{w}.r)|^2 = - [(w.r)]^{\ 2}$, Is a Negative Scalar-Magnitude with Negative or Zero Electric-Charge and Spin ½,

4d. The Negative Breakage Quantity for, Anti-Leptons and Anti-Quarks

1. Breakage - $(w\ r)^{\ 2}$ being on Points A, A_E collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at Point D_A, P_A, [Fig-20] forming Anti-Leptons $\rightarrow \overline{v}_{\ e}$, $\overline{e}$, and Anti-Quarks $\rightarrow \overline{u}$, $\overline{d}$
2. Breakage - $(w\ r)^{\ 2}$ being on Points B, B_E collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at Point D_B, P_B forming Anti-Leptons $\rightarrow \overline{v}_{\ \mu}$, $\overline{\mu}$, and Anti-Quarks $\rightarrow \overline{c}$, $\overline{s}$
3. Breakage -$(w\ r)^{\ 2}$ being on Points C, C_E collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at point D_C, P_C forming Anti-Leptons $\rightarrow \overline{v}_{\ \tau}$, $\overline{\tau}$, and Anti-Quarks $\rightarrow \overline{t}$, $\overline{b}$
4. The Breakage $2(\overline{w}.r)|^2$, Is a Vector Magnitude with Positive or Zero or Negative Electric-Charge, and Spin (2w) = 1,

5d. The Gluons, Bosons and Anti Particles from + s ^{2} Breakage Quantity

1. Breakage $2|sr|.\overline{w}$, being on Points A, A_E collide with vector $\overline{v} = \overline{w}.r$ and then are Getting Off the common circle at Point D_A, P_A forming Gluons $\rightarrow$ g, $W^{+,}$ Bosons the W^{+} Particle and their $\overline{W}$, $\overline{g}_{\ R}$, Anti Particles.

2. Breakage 2|sr|.$\overline{w}$, being on Points B, B_E collide with vector $\overline{v}$ = $\overline{w}$.r and then are Getting - Off the common circle at Point D_B, P_B forming Gluons → g, $Z^{+,}$ Bosons the Z^+ Particle and their $\overline{Z}$, $\overline{g}_G$, Anti Particles.

3. Breakage 2|sr|.$\overline{w}$, being on Points C, C_E collide with vector $\overline{v}$ = $\overline{w}$.r and then are Getting Off the common circle at Point D_C, P_C forming Gluons → g, H^+ Bosons the H^+ Particle and their, $\overline{H}$, $\overline{g}_B$, Anti particles.

4. Breakage $2(\overline{w}\,r)^2$ on Points A, B, C and on Points A_E, B_E, C_E then on P_A, P_B, P_C the Photos γ, Graviton $G^\pm$, $M^\pm$, Bosons The γ, G, M, Particles and the $\overline{γ}$, $\overline{G}$, $\overline{M}$,

Anti Particles as,

- $Q`P_A$ = | B, C_E, P_A |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [- cos(BC $_E$, P_A)] → γ
- $Q`P_A$ = | C, B_E, P_A |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [- cos(CB $_E$, P_A)] → $\overline{γ}$
- $Q`P_B$ = | C, A_E, P_B |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [cos (AC $_E$, P_B)] → G
- $Q`P_B$ = | A, C_E, P_B |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [cos (CA $_E$, P_B)] → $\overline{G}$
- $Q`P_C$ = | A, B_E, P_C |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [- cos(AB $_E$, P_C)] → M
- $Q`P_C$ = | B, A_E, P_C |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [- cos(BA $_E$, P_C)] → $\overline{M}$
- $Q`P_C$ = | B, A_E, P_C |.$2|wr|^2$ = $|r.w|.2.(r^2.w^2)$ = $2.(r^3.w^3)$. [- cos(BA $_E$, P_C)] → $\overline{M}$

The Positive Breakage Quantity Q, for Leptons and Quarks
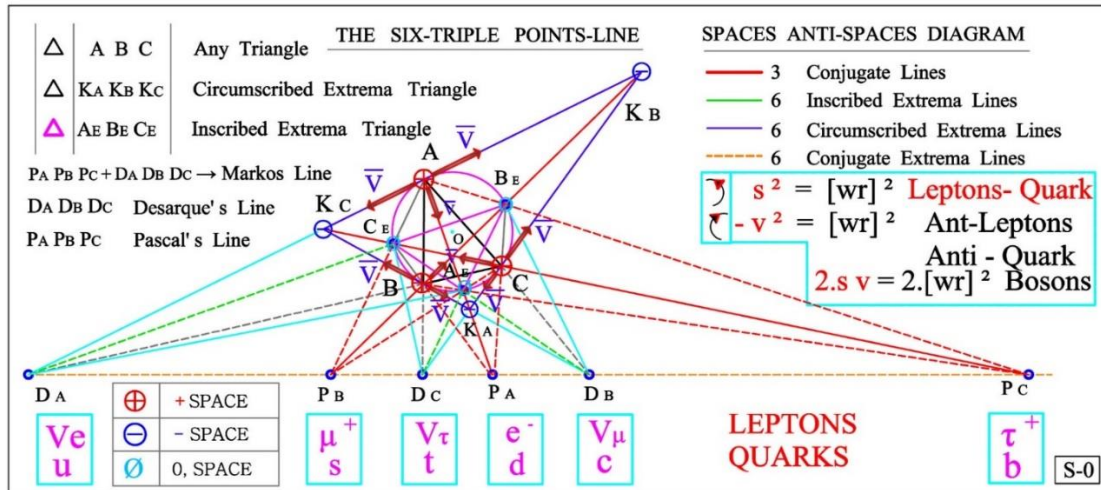

Figure 19: The [STPL] line → Producing Leptons and Quarks F[5-2.1]

QD_B = |B|.$|s^2|$ = $|r.w|.(r.w)^2$ = $(r.w)^3$.[- cos(A_E, D_B) - cos(B_E,D_B - cos(C $_E$, D_B)] → μ

s^2 = $(r.w)^2$ → Being at Space and Anti-Space Points A,B,C and A_E, B_E, C_E then Anti magnitudes Q' at coinsiding Points P_A, P_B, P_C, are

$Q'P_B$ = |B|.$|s^2|$ = $|r.w|.(r.w)^2$ = $(r.w)^3$. [cos(A, P_B) + cos(B, P_B) + cos(C, P_B)] → c

$Q'P_B$ = |B|.$|s^2|$ = $|r.w|.(r.w)^2$ = $(r.w)^3$. [cos(A_E, P_B) + cos(, D_B + cos(C $_E$, D_B)] → s

QD_C = |C|.$|s^2|$ = $|r.w|.(r.w)^2$ = $(r.w)^3$. [cos(A, D_C) + cos(B, D_C) + cos(C, D_C)] → vτ

s^2 = $(r.w)^2$ → Being at Anti-Space Points A_E, B_E, C_E then Action magnitudes Q at coinsiding Points **D_A, D_B, D_C**, are

$Q\mathbf{D_C}$ = |C|.$|s^2|$ = $|r.w|.(r.w)^2$ = $(r.w)^3$.[cos(**A_E, D_C**) + cos(**B_E**,D_C - cos(**C_E, D_C**)] → τ s^2 = $(r.w)^2$ → Being at Space and Anti-Space Points A,B,C and **A_E,B_E,C_E** then Anti-magnitudes Q' at coinsiding Points **P_A,P_B,P_C**, are

$Q'\mathbf{P}_C = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [- \cos(A, \mathbf{P}_C) - \cos(B, \mathbf{P}_C) - \cos(C, \mathbf{P}_C)] \to t$

$Q'\mathbf{P}_C = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [- \cos(\mathbf{A_E}, \mathbf{P}_C) - \cos(\mathbf{B_E}, \mathbf{P}_C) - \cos(\mathbf{C_E}, \mathbf{P}_C)] \to b$

6d. The Negative Breakage Quantity Q, for Anti-Leptons and Anti-Quarks
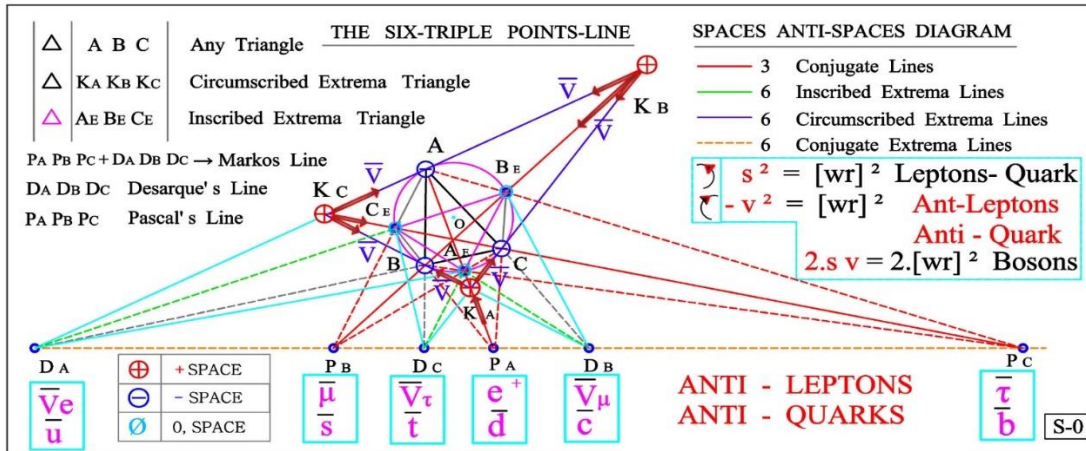
Figure 20: The [STPL] line → Producing Anti-Leptons and Anti-Quarks F[5-2.2] The Negative Breakage Quantity for, Anti-Leptons and Anti-Quarks.

2. The Negative breakage Quantity → $- |\mathbf{w}^-|^2 = - |\bar{\mathbf{w}} \times \mathbf{r}|^2 = - |\mathbf{w}^- \times \mathbf{r}|^2 \to$ Being at Space Points A, B, C then Action magnitudes Q at coinsiding Points D_A, D_B, $D_C - \mathbf{P}_A$, $\mathbf{P}_B$, $\mathbf{P}_C$, Produces Anti-Leptons and Anti-Quarks, and carry them on [STPL] line.

$Q\mathbf{D_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [\cos(A, \mathbf{D_A}) + \cos(B, \mathbf{D_A}) + \cos(C, \mathbf{D_A})] \to \bar{v} e \ s^2 = (r.w)^2 \to$ Being at Anti-Space points $\mathbf{A_E}$, $\mathbf{B_E}$, $\mathbf{C_E}$ then Action magnitudes Q at coinsiding Points $\mathbf{D_A}$, $\mathbf{D_B}$, $\mathbf{D_C}$ are

$Q\mathbf{D_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [\cos(\mathbf{A_E}, \mathbf{D_A}) + \cos(\mathbf{B_E}, \mathbf{D_A} + \cos(\mathbf{C_E}, \mathbf{D_A})] \to \bar{e} \ s^2 = (r.w)^2 \to$ Being at Space and Anti-Space Points A,B,C and $\mathbf{A_E}$, $\mathbf{B_E}$, $\mathbf{C_E}$ then Anti magnitudes Q' at coinsiding Points $\mathbf{P_A}$, $\mathbf{P_B}$, $\mathbf{P_C}$ are

$Q'\mathbf{P_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [- \cos(A, \mathbf{P_A}) - \cos(B, \mathbf{P_A}) + \cos(C, \mathbf{P_A})] \to \mathbf{u}^-$

$Q'\mathbf{P_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [-\cos(\mathbf{A_E}, \mathbf{P_A}) + \cos(\mathbf{B_E}, \mathbf{P_A}) - \cos(\mathbf{C_E}, \mathbf{P_A})] \to \mathbf{d}$

$Q\mathbf{D_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [- \cos(A, \mathbf{D_B}) - \cos(B, \mathbf{D_B}) - \cos(C, \mathbf{D_B})] \to \bar{v} \mu$

$s^2 = (r.w)^2 \to$ Being at Anti-Space Points $\mathbf{A_E}$, $\mathbf{B_E}$, $\mathbf{C_E}$ then Action magnitudes Q at coinsiding Points $\mathbf{D_A}$, $\mathbf{D_B}$, $\mathbf{D_C}$ are

$Q\mathbf{D_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[- \cos(\mathbf{A_E}, \mathbf{D_B}) - \cos(\mathbf{B_E}, \mathbf{D_B} - \cos(\mathbf{C_E}, \mathbf{D_B})] \to \mu^- \ s^2 = (r.w)^2 \to$ Being at Space and Anti-Space Points A,B,C and $\mathbf{A_E}$, $\mathbf{B_E}$, $\mathbf{C_E}$ then Anti magnitudes Q' at coinsiding Points $\mathbf{P_A}$, $\mathbf{P_B}$, $\mathbf{P_C}$ are

$Q'\mathbf{P_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [\cos(A, \mathbf{P_B}) + \cos(B, \mathbf{P_B}) + \cos(C, \mathbf{P_B})] \to \mathbf{c}$

$Q'\mathbf{P_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [\cos(\mathbf{A_E}, \mathbf{P_B}) + \cos(\mathbf{B_E}, \mathbf{D_B} + \cos(\mathbf{C_E}, \mathbf{D_B})] \to \mathbf{s}$

$Q\mathbf{D_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [\cos(A, \mathbf{D_C}) + \cos(B, \mathbf{D_C}) + \cos(C, \mathbf{D_C})] \to \bar{v}\tau$

$s^2 = (r.w)^2 \to$ Being at Anti-Space Points $\mathbf{A_E}$, $\mathbf{B_E}$, $\mathbf{C_E}$ then Action of magnitudes Q at coinsiding Points $\mathbf{D_A}$, $\mathbf{D_B}$, $\mathbf{D_C}$ are

$Q\mathbf{D_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [\cos(\mathbf{A_E}, \mathbf{D_C}) + \cos(\mathbf{B_E}, \mathbf{D_C} - \cos(\mathbf{C_E}, \mathbf{D_C})] \to \bar{\tau} \ s^2 = (r.w)^2 \to$ Being at Space and Anti-Space Points A,B,C and $\mathbf{A_E}$, $\mathbf{B_E}$, $\mathbf{C_E}$ then Anti magnitudes Q' at coinsiding Points $\mathbf{P_A}$, $\mathbf{P_B}$, $\mathbf{P_C}$ are

$Q'\mathbf{P_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [- \cos(A, \mathbf{P_C}) - \cos(B, \mathbf{P_C}) - \cos(C, \mathbf{P_C})] \to t$

$Q' \mathbf{P_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3. [- \cos(\mathbf{A_E}, \mathbf{P_C}) - \cos(\mathbf{B_E}, \mathbf{P_C}) - \cos(\mathbf{C_E}, \mathbf{P_C})] \rightarrow \mathbf{b}$

7d. The Neutral Breakage Quantity for, Bosons Origination

The [STPL] line from Breakage Quantity $[2\mathbf{\overline{w}}].|s| \mid \mathbf{r}|.\nabla i = 2(w.r)^2.\nabla$
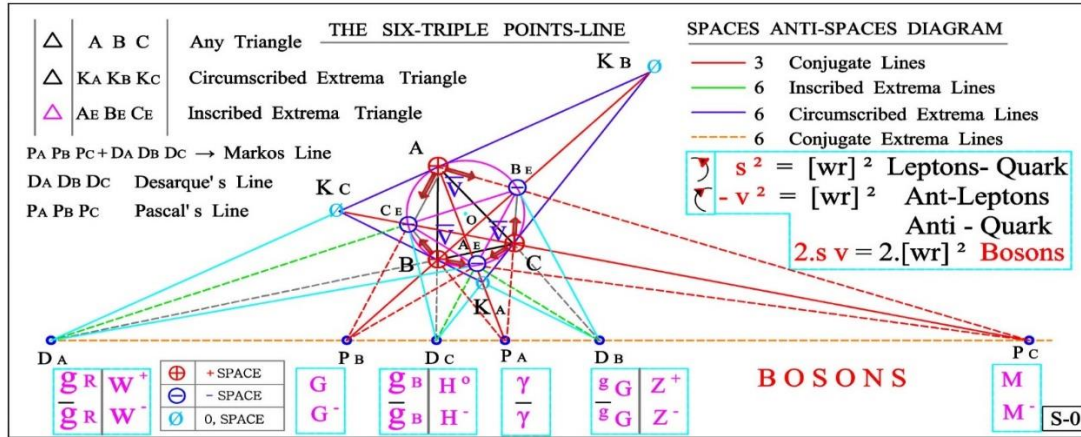
Figure 21: The [STPL] line → Producing Bosons F [5-2.3] The [STPL] line → Producing Strong Gluon (g) → Electromagnetic(γ) → Weak (W±, Z±, H±), Bosons AA_E, BB_E , CC_E

3. The Breakage Quantity $[2\overline{w}].|s|.|\overline{r}.\nabla i = 2w.(sr).\nabla i = 2w.(r^2.w).\nabla i = 2w.r^2w.\nabla i \rightarrow$ Being Tangential at Space Points A,B,C and Axial at Space Anti-Space Points AA_E, BB_E , CC_E, then Action magnitudes FA at coinsiding Points D_A, D_B, D_C and P_A, P_B, P_C Produces Forces with Spin 1 (because of 2w) on [STPL]which transfer Energy (Thrust) on Leptons and Quarks.

(a) Breakages on Points,A,B,C, and on Points A_E, B_E, C_E then on $[D_A, D_B, D_C] \rightarrow$ the Gluons g and [W ±], Z ±, H ± Bosons the W + Particle and the $\overline{W}, \overline{g}$ R, Anti Particles. $QD_A = |A|.2|wr|^2 = |r.w|.2.(rw)^2 = 2.(r^3.w^3). [\cos(A, D_A)] \rightarrow g$ R

$2.(r^3.w^3) \rightarrow$ Being at Anti-Space Point A_E, then Action magnitudes Q at coinciding Point D_A is $QD_A = |A|. 2|wr|^2 = |r.w|. 2. (r^2.w^2) = 2.(r^3.w^3).[\cos(A_E, D_A)] \rightarrow \overline{g}$ R

$2.(r^3.w^3) \rightarrow$ Being at Space and Anti-Space points B, C and B_E, C_E then magnitudes Q at coinsiding Point D_A is $QD_A = |BC|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos (BC, D_A)].\sin(BC, D_A) \rightarrow$ W +, $QD_A = |B_E, C_E|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos(B_E, C_E, D_A)].\sin(B_E, C_E, D_A) \rightarrow \overline{W}$

(b) Breakages on Points,A,B,C, and on Points A_E, B_E, C_E then on $D_A, [D_B], D_C \rightarrow$ the Gluons g and W ±, [Z ±], H ± Bosons the Z + Particle and the $\overline{Z}, \overline{g}$ G, Anti Particles. $QD_B = |B|.2|wr|^2 = |r.w|.2.(rw)^2 = 2.(r^3.w^3). [\cos(B, D_B)] \rightarrow gG,$

$2.(r^3.w^3) \rightarrow$ Being at Anti-Space Point B_E, then Action magnitudes Q at coinciding Point D_B is $Q D_B = |B|. 2|wr|^2 = |r.w|. 2. (r^2.w^2) = 2.(r^3.w^3).[\cos(B_E, D_B)] \rightarrow g\overline{G},$

$2.(r^3.w^3) \rightarrow$ Being at Space and Anti-Space Ppoints A,C and A_E, C_E then magnitudes Q. At coinsiding Point D_B is $QD_B = |AC|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos(AC, D_B)] \rightarrow$ Z+, $QD_B = |A_E, C_E|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos(A_E, C_E, D_B)].\sin(A_E, C_E, D_B) \rightarrow \overline{Z}$

(c) Breakages on Points A,B,C and on Points A_E, B_E, C_E then on $D_A, D_B, [D_C] \rightarrow$ the Gluons g and W ±, Z ±, [H ±] Bosons the H + Particle and the $\overline{H}, \overline{g}$ B, Anti Particles
$QDC = |C|.2|wr|^2 = |r.w|.2.(rw)^2 = 2.(r^3.w^3). [\cos(C, D_C)] \rightarrow g$ B

$2.(r^3.w^3) \rightarrow$ Being at Anti-Space Point C_E, then Action magnitudes Q at coinciding Point D_C is $QD_C = |C|. 2|wr|^2 = |r.w|. 2. (r^2.w^2) = 2.(r^3.w^3).[- \cos(C_E, D_C)] \rightarrow \overline{g}$ B

$2.(r^3.w^3) \rightarrow$ Being at Space and Anti-Space Points B,A and B_E, A_E then magnitudes Q at coinsiding Point D_C is $QD_C = |BA|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[- \cos(BA, D_C)].[x]$
$i [x] = [\sin(BA, D_C) \rightarrow H^+$
$QD_C = |A_E B_E|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos(A_E B_E, D_C)].\sin(A_E B_E, D_C) \rightarrow \overline{H}$

(d) Breakages on Points A,B,C and on Points A_E, B_E, C_E then on P_A, P_B, $P_C \rightarrow$ the Photos γ, Graviton $G^\pm$, $M^\pm$, Bosons the γ, G, M Particles and the $\overline{\gamma}$, $\overline{G}$, $\overline{M}$, Anti Particles.

$Q'P_A = | B, C_E, P_A |.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[- \cos(BC_E, P_A)] \rightarrow \gamma$
$Q'P_A = | C, B_E, P_A |.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[- \cos(CB_E, P_A)] \rightarrow \overline{\gamma}$
$Q'P_B = | C, A_E, P_B |.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos(AC_E, P_B)] \rightarrow G$
$Q'P_B = | A, C_E, P_B |.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[\cos(CA_E, P_B)] \rightarrow \overline{G}$
$Q'P_C = | A, B_E, P_C |.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[- \cos(AB_E, P_C)] \rightarrow M$
$Q'P_C = | B, A_E, P_C |.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).[- \cos(BA_E, P_C)] \rightarrow \overline{M}$

Where $\cos(A, D_A)$, $\cos(A_E, D_A)$ = cos of tangents at Points A,B,C - A_E, B_E, C_E and the [STPL], (x-x axis). Spin $1 \rightarrow 2 \times \frac{1}{2}$: $\frac{1}{2}$ Spin $\rightarrow S = h/2\pi = \overline{h} = 6,6261.10^{-34}$ Js$^{-1}/2\pi = 1,05459. 10^{-34}$ Js^{-1} = $4,135626.10^{-15}$ eVs^{-1} and it is The Energy of a Photon = $|\overline{w}. r|^2$ for the Positive and Negative scalar Breakage magnitudes Particles. Quantity $\rightarrow 2|\overline{w}, r|^2 = 2.[|\overline{w}, r|^2 = \frac{1}{2}$ Spin] = Spin 1 and equal to $2.[4,135626.10^{-15}$ eVs$^{-1}] = 8,271252.10^{-15}$ eVs^{-1}. Spin Anti-Spin is the Rotational equilibrium of Spaces. Spin is an Intrinsic Property of the three Breakage Quantities = $8,271252.10^{-15}$ eVs^{-1} for Leptons and Quarks and double $1,31644.10^{-15}$ eVs^{-1} for the Vector Breakage magnitude Particles. Angular velocity w = $2,5656.10^{-8}$ eVs$^{-1}/1,9845.10^{-62}$ m = $2,58564.10^{-54}$ eV/ m of the Rotational Energy Λ is a common Property of all breakages resulting from the Action of velocity vector, $\overline{v}$, on the breakages. Energy is equal to the velocity vector $\overline{v} = \overline{w}. r$, or E = w.r G = $2,5656.10^{-8}$ eVs = $2,5656.10^{-27}$ J s.

8d. The Vibration of Particles in all Levels [54].

Curves created by Rotor`s electron are such that they keep a continuous Pressure on Protons.

1. The Continuous action of Negative $\ominus$, on *One* Positive $\oplus$, is equivalent to a Circular motion of the $\ominus$, $\oplus$, with velocity $v = \sqrt{F. r/m}$, and this because exists l = r = constant.

2. The Continuous action of Negative $\ominus$, on *Two* Positive $\oplus\oplus$ of glued Bond, is equal to a Circular - and Other of one-step longer motion of $\ominus$ to $\oplus\oplus$, or Circular motion on the Common–length, l, in Polar equations is, $l = a. \cos(c.\theta)$ or $l = a. \sin(c.\theta)$ where a = the length of the base $=2r+2r = 4r$, c = Rim`s number which Produce a c-Petaled rose, If c is odd or 2c-Petaled Rose and if c is even number. The Period of both $\cos(c\theta)$, $\sin(c\theta)$ is $2\pi/c$, and the number of petals for the period is $[0, 2\pi/c]$ will be c or 2c, according to as c is odd or c is even, so the degree of the Cartesian equation of the curve is, c +1 for odd-c, and 2(c+1) for even-c.

3. The Continuous action of Negative $\ominus$, on *Three* Positive $\oplus\oplus\oplus$ of glued Bond, is equivalent to a Circular-and Other of two-step longer motion of $\ominus$ to $\oplus\oplus\oplus$, or Circular motion on the Common–length. Length, l, in Polar equations is, $l = a. \cos(c.\theta)$ or $l = a. \sin(c.\theta)$, where a is the length of the base = 2r + 2r + 2r = 6r, c = Rim`s number which produce a c-petaled rose, where c is odd or 2c - petaled rose number. This is seen and from equations issuing in Figure.21-2 $\rightarrow r = r_D.\sin \varphi$ and $R = R_D.\sin\varphi$ where a, are the equal radius of Point A of Polar path. Rhodonea curves follow the Odd or and Even number of Protons in Nucleus by changing their Rolling-length a = (2r), and the Polar –

length l = a. cos(c.θ) depending on,θ, as above. The common bonding Point of the Negative circle and the Positive line of the Rolling circle obliges that Point to follow the Cycloid motion in maximum degree and thus executing Hypocycloid motion. Particles Vibration in all Levels of Material-Geometry.
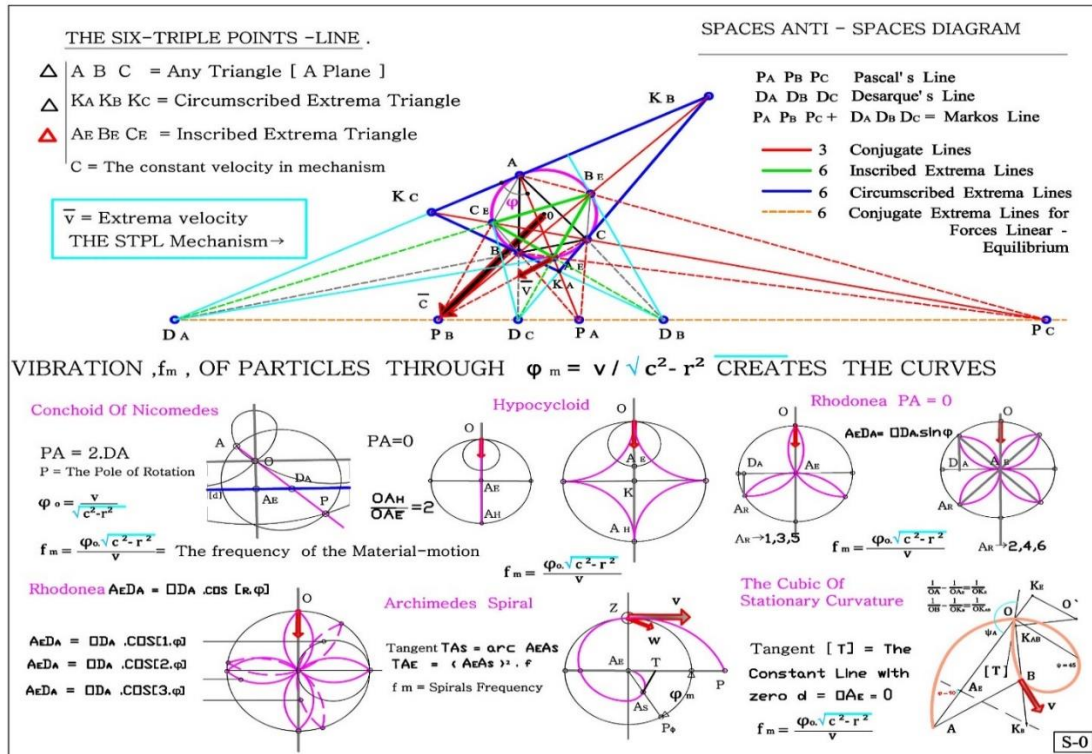

Figure 22: The Glue-Bond Electrons of Nucleus Rotor, form Rhodonea-like - Curves

9d. The Dimensioning of the [STPL] – Mechanism

Defining the lengths, $a = K_B K_C$, $b = K_C K_A$, $c = K_A K_B$, $d = [\frac{a+b+c}{2}]$ =The semi-perimeter then the Inscribe radius $r = \frac{\sqrt{d(d-a)(d-b)(d-c)}}{d}$ = |OA|, The Coordinates for the Point K=D_A are $[\frac{bc}{b+c-a}]$: $[\frac{ca}{c+a-b}]$: $[\frac{ab}{a+b-c}]$, while for Point O are $[\frac{b+c-a}{a}]$: $[\frac{c+a-b}{b}]$: $[\frac{a+b-c}{c}]$. Fig-17 The STPL Mechanism is the Mould consisted from any Common circle O,OA=[OA`≡ OA$_E$], O,OB = [OB`≡ OB$_E$], O,OC = [OC`≡ OC$_E$], and the Common lines D_A-P_A, D_B-P_B, D_C-P_C all on a line of STPL. On the infinite Sectors AD$_A$-AP$_A$, BD$_B$-BP$_B$, CD$_C$-CP$_C$ vibrate The Breakages [± s^2 = ± $(w r)^2$] and [$\nabla i = 2(w r)^2$] forming all families of curves and the Euler -Savary Coupler - curves of the Cubic-Of-Stationary - Curvature Mechanism of Spaces, Anti-spaces Vibrating the End-curves. The Dimensioning of the Mechanism is Possible by using the analytical geometry. [91] The Dimensioning of Proton – Neutron In Fig-26, and others with Compounds In Fig-27. The Dimensioning of Hydrogen and Atoms In Fig-28-29-30,

10d. The Cosmic Particles in The Cycloid, Anti-cycloid Evolute
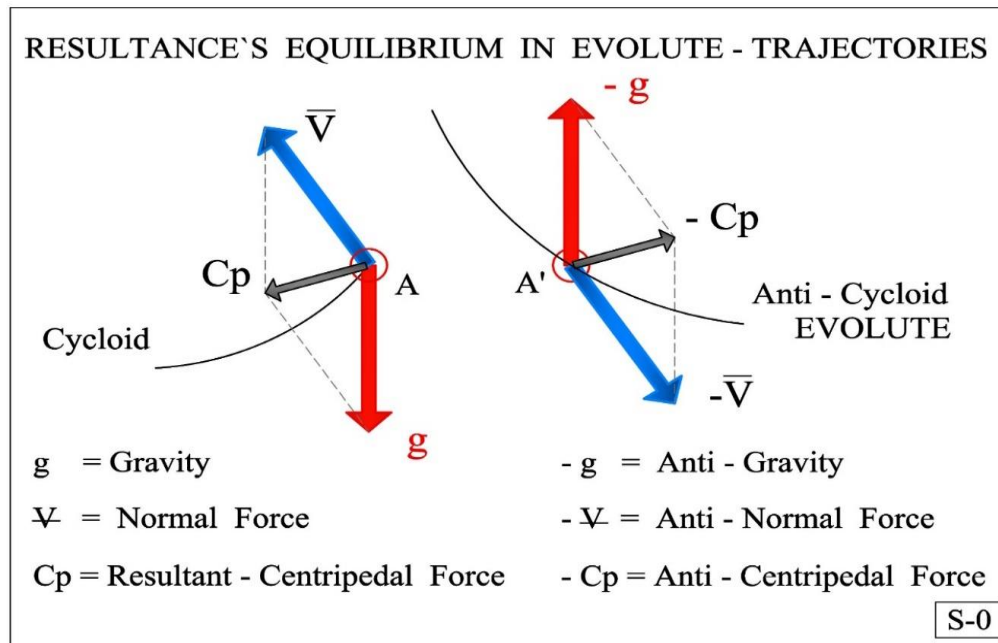
Figure 23: The Equilibrium of the Resultant Forces, in the Cycloid and for motion Wavelength, and of any other Removal Monad. The Intrinsic Space is (Wavelength = [λ]), as the Energy Quanta.

The moving monads in Cycloid Equilibrium in the Anti - Cycloid (Evolute). The equilibrium of the Resultant forces is obtained by the above Cycloid, Anti-cycloid *Evolute* Forces, or by the Rotor and Spin in one Rim, as was shown.

In Rims is possible the forming velocities greater than that of light, and this because of different, r, and the Tangential velocities are kept with the same angular velocity, *the Spinning*, unless Spinning changes in such way to keep light-velocity constant.

The Equilibrium of the Three-Spaces, The Space Anti-Space, Neutral-Space : [60] The Stability of Elementary Particles, Conductors and the Atoms -Nucleus Fig-24

The Equations of motion become everywhere from any Opposite Space $\equiv \oplus$, Anti- space $\equiv \ominus$. During these motions as, ds. is Done a Constant-Work, k, or and from their velocities $\bar{v}$ and this Work may be Positive or Negative for Equilibrium. In F-23 Cycloid Anti-cycloid motion is as, D. The Origination of Gravity g, Antigravity [- g]

In Fig-24, Conductor $D = d = AK_A$ where $\oplus$ constituent attacks $\ominus$ by a Hook`s law force as Stress $\sigma = E\,u$, and an Coulomb force $F_{[+ \leftrightarrow -]} = \frac{[\oplus \leftrightarrow \ominus]}{r^2} = \frac{[2\,\sigma]}{r^2}$, creating Work $\equiv$ motion as was shown It was shown that, The Stability of Nucleus Forces, is succeeded through *The Pascal`s* - Ceba`s triangle launched caves r, while Leptons from their *Anti - Leptons* existence in the same launched Pascal`s - caves r. [58]

The Equilibrium of the Three-Spaces is Done on the three Cyclic-Quadrilaterals $(AB_E A_E C_E)$ $(BC_E B_E A_E)$, $(CA_E C_E B_E)$ of the 6 Conductors each for, [a, b, c, d, p, q] x [3-ABC] = 18 Conductors.

Linearly is through *the Products* of the Diagonal - connectors *as*, → → → $[AA_E].[B_EC_E]$ = $[AC_E].[A_EB_E]+[AB_E].[A_EC_E]$, $[BB_E].[C_EA_E]$ = $[BA_E].[B_EC_E]+[BC_E].[B_EA_E]$, $[CC_E].[A_EB_E]$ = $[CA_E].[B_EC_E]+[CB_E].[C_EA_E]$ and, Rotationally through *the Ratio* of the Diagonals ≡ The Conductors $|\frac{AK_B}{AK_C}|x|\frac{BK_C}{BK_A}|x|\frac{CK_A}{CK_B}|$ = 1 or ± Rotational-Equilibrium as, $[AK_B].[CK_A].[BK_C]$ = $[AK_C].[BK_A].[CK_B]$, of all Opposites ⇒ Tangential-Electromotive Forces. From Mechanics-Physics, *all Systems Possessing Elasticity ≡ motion and Reaction to motion,* the called mass, *are capable of free vibration or vibration taking Place in the Absence of External Excitation* [7]. This Principle issues for Both Closed or Open Systems. i.e. either for the Nucleus where issues *The Pascal`s -* Ceba`s triangle Stability, or for the Orbitals where issues the *Tetrahedron - Cube – Sphere – Mould.*

11d. The Stability of the Cosmic Particles Conductors and Atoms – Nucleus
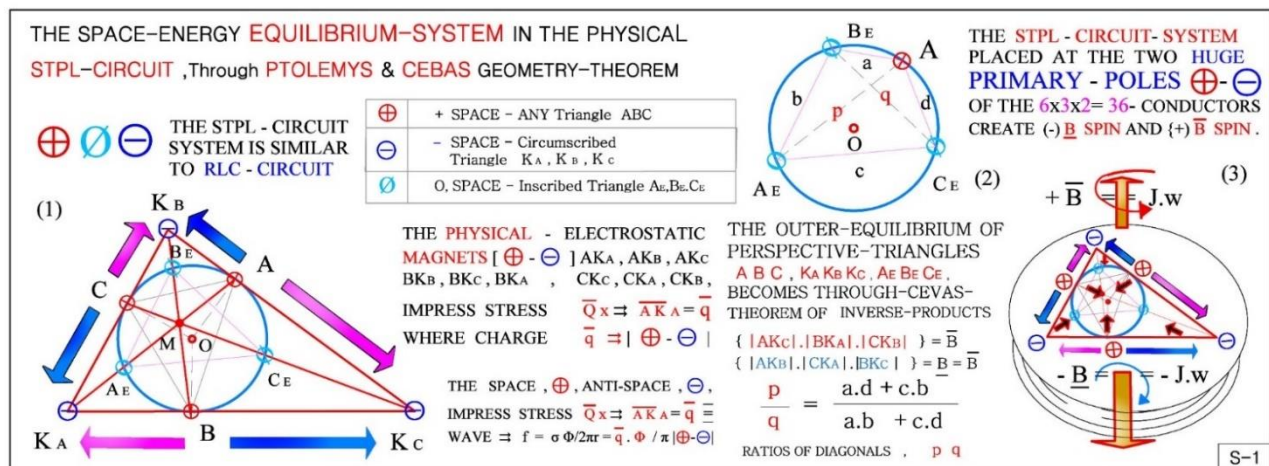
Figure 24: The Stability of → {⊕ - Space [A B C]}, {⊖ - Anti-Space [K_A K_B K_C]}, of The Sub-Space [A $_E$, B $_E$, C $_E$]}, and Neutral-Space {[⊕↔⊖] ≡ ds ≡ [⊕←ds→⊖]}.

Since, Energy of the first Wheel-Rim or Orbital is distributed to the couple of (2e) Electrons of the Orbital, then this is a Cycloid - Anti-cycloid - Stability System. This Still Systems of Space –Anti space DOES NOT mean Matter–Antimatter but The State of Equilibrium in Caves ≡ The Ceba`s Energy triangle.

a. The Space Anti-Space and, Neutral-Space Conductors : [60]

The Equations of motion become everywhere from any Opposite, Space ≡ ⊕, and Anti-space ≡ ⊖. During these motions as, ds. is done a Constant-Work, k, or and from their velocities $\bar{v}$. In Figure Conductor D = d = AK_A where ⊕ constituent attacks ⊖ by a Hook`s law force as Stress σ = E u, and an Coulomb force $F_{[+ ↔ −]} = \frac{[⊕↔⊖]}{r^2} = \frac{[2\,σ]}{r^2}$, creating Work ≡ motion as was shown. [58] It was shown that, The Stability of Forces is succeeded in *The Pascal`s -* launched caves r while Leptons, from their *Anti - Leptons* existence in the same launched Pascal`s-caves r.

The Equilibrium of the Three-Spaces is succeeded on the three Cyclic - Quadrilaterals → ($AB_EA_EC_E$), ($BC_EB_EA_E$), ($CA_EC_EB_E$) of 6 Conductors each [a, b, c, d, p, q] x [3-ABC] = 18 Conductors.

Linearly is through *the Products* of the Diagonal - connectors *as*, $\rightarrow \rightarrow \rightarrow$ $[AA_E].[B_EC_E]$ = $[AC_E].[A_EB_E]+[AB_E].[A_EC_E]$, $[BB_E].[C_EA_E]$ = $[BA_E].[B_EC_E]+[BC_E].[B_EA_E]$,$[CC_E].[A_EB_E]$ = $[CA_E].[B_EC_E]+[CB_E].[C_EA_E]$ and, Rotationally through *the Ratio* of Diagonals $\equiv$ The Conductors $|\frac{AK_B}{AK_C}|$ x$|$ $\frac{BK_C}{BK_A}$ $|$x$|$ $\frac{CK_A}{CK_B}$ $|$ = 1 or the $\pm$ Rotational-Equilibrium $[AK_B].[BK_C].[CK_A]$ = $[AK_C].[BK_A].[CK_B]$,of all above Opposites $\rightarrow$ Tangential-Electromotive-Forces $\leftarrow$ From Mechanics,*all Systems Possessing Elasticity $\equiv$ motion and Reaction to motion,* called mass*, are capable of free vibration or vibration taking place in the Absence of External Excitation.* [7] From Lorentz-Force, $F = \overline{q}\,\overline{v}$ x $\overline{B}_F$, where, $\overline{q} \equiv$ Charge, $\overline{v} \equiv$ The velocity of Charge, $\overline{B}_F \equiv$ The Strength of Magnetic field and Centrifugal Force, $F_{CF} = m.w^2_R.r$.

From Cave-Spin, $\overline{S} = r\,m\,v$ then mass m = $(\frac{S}{r.v})$.Equating equations then, $F \equiv F_{CF} \equiv \overline{q}\,\overline{v}$ x $\overline{B}_F$, and $Q_{\pm} = m.w^2_R.r = (\frac{S}{r.v}).w^2.r = \frac{S.w^2}{v} = \frac{S.v^2}{r^2.v} \equiv |\frac{v.\overline{S}}{r^2}|$ ....(EMF) where exists $r_{min} = \sqrt[2]{\pi b^{-n}}$, [95], [96BB].

Electromotive-Forces, $F = \overline{q}\,\overline{v}$ x $\overline{B}_F = Q_{\pm} = \frac{v.\overline{S}}{r^2} \equiv |\frac{c.\overline{S}}{r^2}|$, are The Elementary-Particles {F, L, Q}. From Electromotive-Force in min-cave r = $1,7724538.10^{-3}$ m. exists Electron-Force-Charge $\overline{q}_e$ as $Q_{\pm} = |\frac{c.\overline{S}}{r^2}| = \frac{[2,998.10^8].[1,0546.10^{-34}]J}{(1,7724538.10^{-3})^2}$ = $1,6022.10^{-19}$ eV, which is the Electron-Force-Charge and also from the Gravitational-Stress-Charge $\overline{q}_{Electron}$ = $\frac{G}{c\sqrt{2}}$ = $\frac{6,6736923.10^{-11}}{1,41429.2,9979346.10^8}$ = $1,574.10^{-19}$ C. Electromotive-Force in the min-cave $e^{-15,572707}$= r = $1,7252787.10^{-7}$ m, and the Gravitational-Force G becomes also as, $Q_{\pm} = |\frac{c.\overline{S}}{r^2}| = \frac{[2,998.10^8].[6,62606957.10^{-34}]}{(1,7252787.10^{-7})^2}$ = $6,673692.10^{-11}$, which is the G - Physical-Force-Charge. When the Heap of the Elementary Particles on D_A-P_A line, is compressed and gets out the line then is a reason for Black Hole creation.
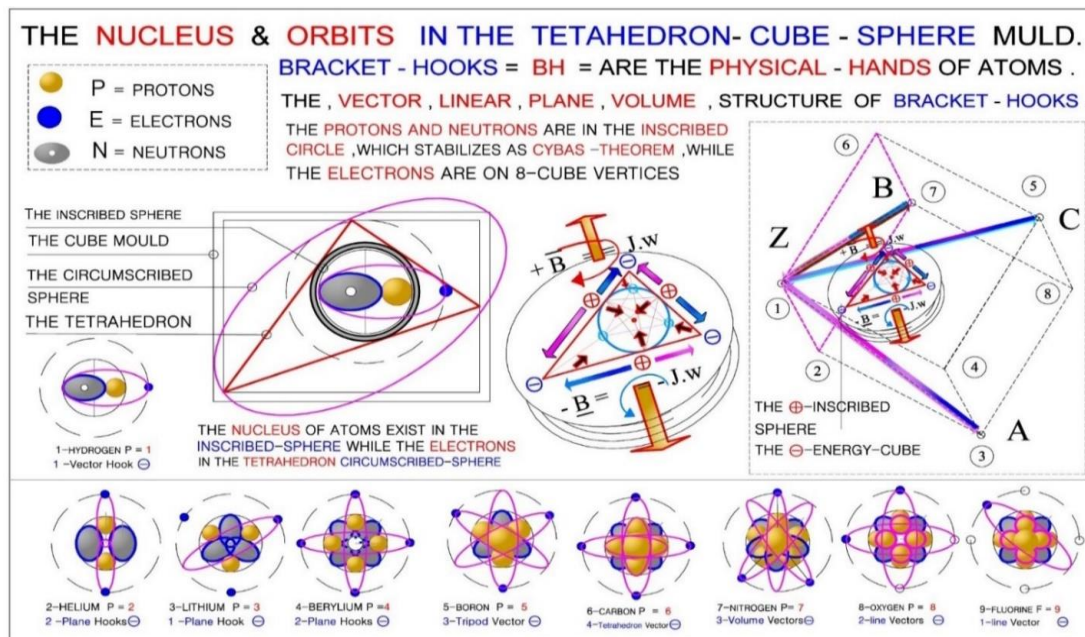

Figure 25: **The Active-Conductors of Elements and The Space, Anti-Space formation**.

The number of Moulds of Stationary-States are $\rightarrow 2^{n=1-4\,Points} \equiv 2, 4,8,16 \equiv 4-Types\leftarrow$ The Proton = Nucleus, Neutral-caves $\rightarrow$ {In Inscribed Sphere-Tetrahedron-CUB-Ex Sphere}. The Active-Conductors of Elements and The Space, Anti-Space formation.

Point, in E-geometry is considered nothing, without Position and direction while in, MG ≡ *Material - Geometry* [1 Positive $\oplus$ and 1 Negative $\ominus$]. From Nothing (i.e. the Point Z) to Existence (i.e. to be another Spherical Point P) issues the Zero Virtual work law, where zero Work is the equilibrium of two Equal and Opposite forces on Points and is [$\oplus$ - d - $\ominus$]. Thus Space [S] is Z-Point $\oplus$, Anti-space P-Point $\ominus$, and d = ZP = The Conductor of Points Since, *The Position and the Number of Points*, create the Spaces so the Only Three elements are $\rightarrow$ {$\oplus$, [$\oplus\leftrightarrow\ominus$], $\ominus$} ≡ [+, 0, -] $\leftarrow$ for Material Geometry exist linearly in moulds. The Space Anti-Space and, Neutral-Space Conductors are self-Sustaining. The Stability of {$\oplus$ - Space [A B C]}, {$\ominus$ - Anti-Space [K_A K_B K_C]} and Neutral-Space or Sub-Space in a Plane [A_E, B_E, C_E]} is $\rightarrow$ {[$\oplus\leftrightarrow\ominus$] ≡ ds ≡ [$\oplus\leftarrow$ds$\rightarrow\ominus$].

Stability

The number of Moulds of Stationary-States are as$\rightarrow 2^{n=1-4\,Points} \equiv 2,4,8,16 \equiv 4-Types\leftarrow$ i.e. Monads are formed from the first 4- Moulds as $\rightarrow$ The 1-Point which is everywhere, the 2- Points which form Vectors, the 3- Points which form the Planes, the 4 - Points which form the Volumes. For n > 4 as this is the Atoms Structure, follows the Sustainability of the Spaces and Anti-spaces. Since Space-Energy Structures follow the M-Geometry Stability these follow the Mould of Spaces $2^{\,n\,=\,3}$ = 8 Elements which is The-Cube as shown before.

1. In the constant, Hydrogen Conservative-Cave-System, which creates only closed Orbit shapes as Circles, Ellipses and Eight-shape, ∞, are placed the above elements, π g ≡ Energy ≡ [*meter* of *area* * *meter of force*] ≡ *Electrons on Orbits*, and also the Unit-Space ≡ *Massive-United-Unit-Space* ≡ $\rightarrow[+\bar{v}.s^2]\leftarrow$ jointed through the Neutral Material-Points [(+) [$\leftrightarrow$] (-)] with the *Strong-force* $\rightarrow S_F = h.f_n \equiv h.\{[S \equiv B_P \equiv EM\text{-}R \equiv f_{1=N}, f_2, f_3, f_D,,f_n]$ $\equiv h.n\frac{(1+\sqrt{5})\sigma}{2\pi r} \equiv h\frac{n.\bar{B}}{4\pi^2.r^4}$ ....(mg) Equations (m), (mg) are the *Energy-Space-constituents* in Hydrogen-System.

a. The Protons and the Nucleus Structure

From above MP ≡ [(+)[$\leftrightarrow$](-)] ≡ Neutral = n, then

(a) For 1 Proton [(+)[$\leftrightarrow$](-)]$\leftrightarrow$(+) ≡ Neutral $\rightarrow$ n = 1   p = 1

(b) For 2 Proton (+)$\leftrightarrow$[(-)$\leftrightarrow$(+)][(+)$\leftrightarrow$(-)]$\leftrightarrow$(+) ≡ Neutral $\rightarrow$ $\begin{matrix} p & n \\ n & p \end{matrix}$

(c) For 3 Proton (+)$\leftrightarrow$[(-)(+)](+)[(-)(+)](+)[(-)(+)] ≡ Neutral $\rightarrow$ $\begin{bmatrix} 0 & 0 & 0 \\ 0 & \overleftrightarrow{2} & 0 \\ 1e & 0 & 0 \end{bmatrix}$

(d) For 4 Proton (+)$\leftrightarrow$[(-)(+)](+)[(-)(+)](+)[(-)(+)](+)[(-)(+)] $\rightarrow$ $\begin{bmatrix} 0 & 0 & 0 \\ 0 & \overleftrightarrow{2} & 0 \\ 1e & 1e & 0 \end{bmatrix}$

(e) For k Proton (k1)$\leftrightarrow$[(-)(+)](k2)[(-)(+)](+)[(-)(+)](+)[(-)(h_k)] $\rightarrow$ $\begin{bmatrix} ke & ke & ke \\ ke & \overleftarrow{k:8-18} & ke \\ ke & ke & ke \end{bmatrix}$

(f) The Inscribed to the Tetrahedron-Sphere consists the Nucleus ≡ The $\oplus$ Space, and in the Circumscribed to the Tetrahedron-Cube Sphere consists the Orbitals ≡ The $\ominus$ Space.

12d. The Annihilation of Fundamental Particles

Considering the, *Matter Antimatter*, with the classical known theory of Annihilation as the common Constant Energy then issue for any Force ↔Anti Force, Electron = $e^- = \ominus \rightarrow$ mass m_e = $9,11.10^{-31}$ Kg → Charge $C_e = 1,602.10^{-19}$ eV → Cave a = $5,0.10^{-17}$ m

1. **Electron - Positron** $\Rightarrow e^- \rightarrow e^+ \equiv 2 \gamma$

The Common $M_{e \rightarrow p}$ is from relation $\frac{1}{M_T} = \frac{1}{m_e} + \frac{1}{m_p} = \frac{1}{m_e} + \frac{1}{m_e} = \frac{2}{m_e} = \frac{2}{9,11.10^{-31}} = \frac{1}{4,555.10^{-31}}$. From energy equation $E = \frac{1}{2} M_{e \rightarrow p} c^2 = \frac{1}{2} [4,555. 10^{-31}].[2,998. 10^8]^2 = 6,827945. 10^{-15}$ J

$$J / (1,6022.10^{-19} \text{ eV}) = 4,2616059. 10^4 \text{ eV} = 42,616059.\text{KeV}$$

The common frequency is $f_{e \rightarrow p} = \frac{E}{h} = \frac{6,827945.10^{-15} \text{ J}}{6.62607.10^{-34} \text{ Js.}} = 1,0304667. 10^{19}$ H = f_γ

13d. The Origination of Proton and Neutron Cosmic Particles

The Elements in the Proton & Neutral-caves → {Masses – Charges - Forces} [89]
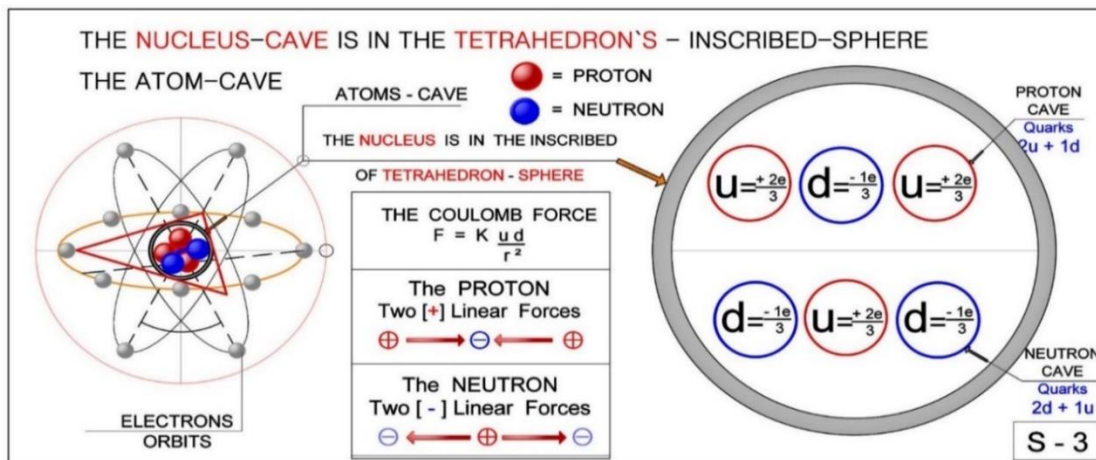
Figure-26: The Sphere-Structure of the Hydrogen-Nucleus, ⊕ Proton, [⊕↔⊖] =Neutron Proton is consisted of Three-Primary-Opposite-Spaces ⊕, ⊖, [⊕↔⊖], having masses m_p, Charges $\overline{q}_p$, and caves a_p = r.

The Nucleus`s Cave r, exists in the Inscribed to the Tetrahedron Sphere. The elements in Proton are the Two u-Quarks and One d-Quark. The Hydrogen-Nucleus is in the Inscribed Sphere from the {Inscribed Sphere -Tetrahedron – Cube - Circumscribed Sphere - System}.

In order to shift the u-d-Quarks of an Anti-Proton into a Proton Spin-Pair require an extra input of Energy-(MeV), so would Proton Paired with a Neutron be Stable.

The Total mass M_T in Proton follows, The Parallel Connections Resistors inverse law, where The Proton Total-Harmonic mass $\equiv M_T$ is → $\frac{1}{M_T} = \frac{1}{m_u} + \frac{1}{m_u} + \frac{1}{m_d}$, The System Total- Harmonic- Charge $\equiv Q_T \equiv 2.q_u + q_d = 2.(2/3).e – (1/3) e = + \frac{3}{3} e = + 1,6022.10^{-19}$ C, and the System- Resonance-Charge $Q_T = + 1, 6022.10^{-19}$ C...(2) The Proton Total- Harmonic- Charge → $Q_T \equiv$

$2.q_u + q_d$,and for the Resonance Frequency of the Unit-Cave is the Stationary-System becoming from Kepler second Planetary-law as equation, $4\pi^2 m f^2_o = k$, and constant law of Areas $1 = k.f^2_o a^3$. Their common k, is the Constant-Energy $\rightarrow k = 4\pi^2 m f^2_p = \frac{1}{f^2_p a^3}$ or, $f^4_p = \frac{1}{4\pi^2 ma^3}$ and

$f_p = \sqrt[4]{\frac{1}{4\pi^2 m.a^3}}$.

The measured magnitudes are as follows,
- (a) Proton$\oplus \rightarrow$ mass $m_p = 1,672.10^{-27}$ Kg $\rightarrow$ Charge $C_p = 1,602.10^{-19}$ C $\rightarrow a = 8,4.10^{-16}$ m
- (b) Electron$\ominus \rightarrow$ mass $m_e = 9,11.10^{-31}$ Kg $\rightarrow$ Charge $C_e = 1,602.10^{-19}$ C $\rightarrow a = 5,0.10^{-17}$ m
- (c) Neutron $[\oplus \leftrightarrow \ominus] \rightarrow$ mass $m_n = 1,672.10^{-27}$ Kg $\rightarrow$ Charge $C_n = 0,0$ C $\rightarrow a = 1,7.10^{-15}$ m
- (d) u-Quark $\rightarrow$ from equal masses $m_p = 2.m_u + m_d = 3.m_u = 1,672.10^{-27}$ Kg and Quark masses $m_u = m_d = m_p / 3 = 5,573.10^{-28}$ Kg, and $\frac{1}{M_T} = \frac{1}{m_u} + \frac{1}{m_u} + \frac{1}{m_d} = \frac{3}{m_p} + \frac{2.3}{m_p} = \frac{9}{m_p}$ and Proton Resonance mass $M_T = \frac{m_p}{9} = 1,857777.10^{-28}$ Kg $\approx 16,7267$ m Ev/c^2 ....(m)

For Proton issues $q_p = 2.q_u + q_d = 2.\frac{2}{3}e - \frac{1}{3}e = e$, and the Stability of forces is axial. Electron-Charge $C_e = 1,602.10^{-19}$ C, while $C_{qu} = \frac{2}{3}e = +\frac{2}{3}1,602.10^{-19}$ C, **$C_{qd} = -\frac{1}{3}e = -\frac{1}{3}1,602.10^{-19}$** C, and from $Q_T \equiv 2.q_u + q_d$, then Proton Resonance charge $Q_T = \frac{3.q_p}{3} = 1,602.10^{-19}$ C ....(c)

Proton-Resonance frequency $f_p = \sqrt[4]{\frac{1}{4\pi^2 m.a^3}} = \sqrt[4]{\frac{1}{4\pi^2 5,573.10^{-28}(8,4.10^{-16})^3}} = 5,26241.10^{17}$ H. Using the United Newton-Coulomb Electro-Mechanical Equation, $q\overline{B}_L = 2\pi.m f$, the Proton Magnetic-field $\overline{B}_F = \frac{|2\pi.m_T|}{Q_T} f = \frac{2\pi.1,85777.10^{-28}5,262409.10^{17}}{1,6022.10^{-19}}$ (Kg/Cs) $= 3,83389.10^9$ Tesla which is the Strength of a Magnetar, i.e. A type of Neutron-Star having an extremely Powerful Magnetic-field, and Electric-Forces to be over Ten-Thousands-Newton.

The Electric Force between the u-Quarks and d-Quarks in Proton is from Coulomb law $F_{ud-p} = C\frac{q_1.q_2}{r^2} = 8,9875.10^9$ (Nm2/c^2).$\frac{2}{9}[1,602.10^{-19}$ C$]^2\frac{1}{(10^{-16})^2} = 1,997222.10^6$ N ...(F p) and The Electric Force between the u-Quarks and d-Quarks in Neutron is $F_{ud-n} = C\frac{q_1.q_2}{r^2} = 8,9875.10^9$(Nm2/c^2).$\frac{2}{9}[1,602.10^{-19}$ C$]^2\frac{1}{(10^{-16})^2} = -1,997222.10^6$ N..(F n) i.e. Forces between the Opposites Equilibrium-Linearly $\leftarrow$[d-u-d] $\rightarrow$ or $\rightarrow$[u-d-u]$\leftarrow$

For the Neutral-cave issues $q_n = 2.q_d + q_u = -2.\frac{1}{3}e + \frac{2}{3}e = 0.e$, and the Stability of forces is axial as in Proton and this because the Dynamic-Strip-Polygon doesn`t close. For,
1. Neutrinos, v, mass m = $(3,11.10^{-6})$ MeV/c^2 x $1,8.10^{-28} = 5,598.10^{-34}$ Kg The Spin is, $S_v = 5,691952.10^{-34}$ {Kg/m/s}, $a_v = 7,0.10^{-21}$ m, $f_v = [E_{vK} = mc^2] / h = 5,6.10^{-34} [10^{17}].1,6022.10^{-19} = 8,96912.10^{-36}$ J/[$6,626.10^{-34}$ Js $= 13,536244.10^1$/s From cave r = 7.10^{-21} m then f = $\sqrt[2]{\frac{1}{g.a^3}} = \sqrt[2]{\frac{1}{9,81(7.10^{-21})^3}} = 5,347345.10^{30}$ H and exists, $E_{vK} = h f_v = 6,62607.10^{-34}$J s.[$5,347.10^{30}$] /($1,6022.10^{-19}$ eV) = $2,2114518.10^{14}$eV Using

$E_{vK} = \dfrac{k}{r} + \dfrac{cS^2}{2m.r^2} = \dfrac{36.10^{-20}}{7,10^{-21}} + \dfrac{3.10^8(5,691952.10^{-34})^2}{2.3,922.10^{-36}[7,0.10^{-21}]^2} = 51,428$ eV+ $2,528774.10^{17}$ eV = $252,8774, [10^{15}]$ TeV → The Total Energy of the Sun striking Earth-face per second.

2. Electron, e, m_e = 0, 511MeV = 0, 511.10^{-5} eV. $[1,80.10^{-27}]$ = $9,198.10^{-31}$ Kg a_e = $5,0.10^{-18}$ m, Charge C_e =$1,602.10^{-19}$ C, Spin $S_e = \dfrac{S}{2}$ =$2,845976.10^{-34}$ {Kg/m/s}, From cave r = 5.10^{-18} m then f = $\sqrt[2]{\dfrac{g}{a^3}}$ = $\sqrt[2]{\dfrac{9,8078}{(5.10^{-18})^3}}$ = $2,801114.10^{26}$ H, and by Using $E_{eK} = \dfrac{k}{r} +$
$\dfrac{cS^2}{2m.r^2} = \dfrac{36.10^{-20}}{7,10^{-18}} + \dfrac{3.10^8(5,691952.10^{-34})^2}{2.9,198.10^{-34}[5.10^{-18}]^2}$ = 51,428 eV + $2,111843.10^{10}$J = 51,43 eV+ $1,32.10^{29}$ eV → The Energy of 133 gr to fall 1 meter against gravity.

Remarks
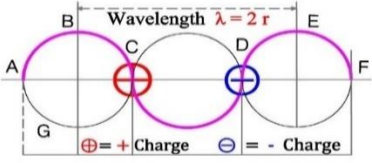
1. Gravitational force → $G \equiv \sigma A \equiv [\dfrac{2\pi rf}{\Phi}] A \equiv \bar{v} [\dfrac{A}{\Phi}] \equiv \sigma.\Phi^3 \equiv \Phi^2. [\{\sigma \Phi\}] \equiv G \equiv \Phi^2. [\{\sigma \Phi\} \equiv$
   $2\pi f_P r \equiv w r \equiv \bar{v} \equiv m g = \bar{c} = \dfrac{2.B}{\pi r^3}] \rightarrow$ i.e. G is related To
   → motion ≡ work W, Spaces r, Anti-Spaces 1/r, Stresses σ, Areas A, Caves a,
   → Periods T, Frequencies f, Angular-waves w, Angular-Momentum B,
   → Spin B ≡ S, velocities v, Light-velocity c, Impedances Z_n, Masses m,
   → Gravity $\bar{g}$, Charges, $\bar{q}$, Electromagnetic – Fields, $\bar{\bar{E}}, \bar{M}$, Hydrogen H,
   → Atoms, Molecules, Golden-Ratio Φ, i.e. All-Universe. Markos 9/4/2020.

By Sweeping the Φ Surface through Stresses $\sigma \equiv [\dfrac{2\pi rf}{\Phi}]$, and scanning frequencies f, i.e. Gravity Force G ≡ motion, exists without mass and is Quantized → Spread in {Space and Anti-Space} or ≡ QUA ≡ {is The Quantized-Units In-Area of Space and Anti-Space}, and as a Mould Φ *Golden-Ratio,* exists in the *Impedance* b.

14d. The Origination of the Compounds of the Cosmic Particles
Using Reams, then All Elementary and Composite Particles are Defined [89]

- Charged-Pions → $\pi^+ \equiv (-1|W^-) \equiv (+1|Z^-)$, $\pi^- \equiv (+1|W^+) \equiv (1|Z^o)$, $\pi^o \equiv 2.Z^o \equiv 2\gamma$,
- Proton → $p \equiv (+1|W^+Z^+)$, *Stability is* > $[\oplus \rightarrow \ominus \leftarrow \oplus]$
- Neutron → $n \equiv (0|W^-Z^o)$, *Stability is* > $[\ominus \leftarrow \oplus \rightarrow \ominus]$
- Delta → $\Delta^{++} \equiv (+2|W^{++}Z^+) \equiv (+1|W^+) + (+1|W^+Z^+) \equiv \pi^- + p$
- Delta → $\Delta^+ \equiv [u\ u\ d]$, $\Delta^o \equiv [u\ d\ d]$,
- Delta → $\Delta^{--} \equiv (-1|W^{--}Z^0) \equiv (-1|W^-) + (0|W^-Z^o) \equiv \pi^+ + n$
- Omega → $\Omega^- \equiv (-1|W^{--}Z^0)$, Xi $\equiv (-1|W^{--}) \equiv (-1|W^-Z^o)$
- Anti-Proton $[-p] \equiv (+1|W^-Z^0)$, *Stability is* > $[\ominus \rightarrow \oplus \leftarrow \ominus] \equiv$ *Antimatter*.

Figure 27: The [STPL] line Voltage-Machine Producing the Forces as Material-Points Is Joining the Elementary-Particles in an Higher to a Lower Voltage :

1. The Constructive and Destructive Interference between Wave-Particles-System Regulates the Voltage, *the free energy motion ≡ binding Energy*, in Nucleus or other Caves.

2. When Binding Energy of any Two Particles ≡ The-motion of $\oplus$ to $\ominus$ is as below then

   $\oplus \to \ominus$ >>> 0 ≡ The Stable-System → XB A← -----C-----0+++X++→ B

   $\oplus \to \ominus$ <<< 0 ≡ The Un-Stable-System ← CA

   $\oplus \to \ominus$ ≈ 0 ≡ The Radioactive-System ← 0X = 0C→

For Deuterium $_1^2H \equiv p + n \equiv -p + n - p = -p + (0\ |W^-Z^o)-(1\ |W^+Z^+) = -p +$ $(-1\ |W^-W^+Z^+Z^o) = -p + (-1\ |Z^+Z^o) = -p + (-1\ |Z^+) + (0|Z^o) = -p + [e^-\overline{\nu_e}] + (0|Z^o) = -p + [e^-\overline{\nu_e}] +$ $[e^-e^+] = -p + 2e^- + [\overline{\nu_e} + e^+] = -p + 2e^- + \overline{\nu_e} + [e^+]$ ....(D)

Initial D $= _1^2H \equiv p + n \equiv (1\ |W^+Z^+) + (0\ |W^-Z^o) = (1\ |Z^+Z^o) = (1|Z^+) + (0|Z^o) = [e^-\ \overline{\nu_e}] + [e^-e^+]$ $= 2e^+ + e^- + [\overline{\nu_e}] = 2e^+ + [e^- + \overline{\nu_e}] = 2e^+ + (-1|Z^-)$ ....(D)

From relation $_1^2H \equiv (1\ |Z^+Z^o) >> 0$ is seen that Deuterium is an Stable-System although its bound is Weak. The Relation $p \equiv (1\ |W^+Z^+)$ shows that W-Boson is the only force via which Particles can transform. In Hydrogen cave, Voltage $= \frac{k.e^2}{r}$ eV, and for Deuterium $V_{p+n} = \frac{[9.10^9.].[1,6022.10^{-19}]^2}{1,0.10^{-15}.[1,6022.10^{-19}]} = 14,42.10^5$ eV = 1,442 MeV which is a Resonance Voltage.

i.e. in order to shift the Nucleons of a Deuterium into a Proton Spin-pair would require an extra input of 1,442 MeV, so Proton Paired with a Neutron is Stable. The Proton`s Charge distribution is all Positive is $p \equiv [u\ u\ d] \equiv (+1\ |W^+Z^+)$, while the Neutron`s $n \equiv [d\ d\ u] \equiv (0\ |W^-Z^o)$.

In order to shift the Nucleons of an Anti-Deuterium into a Proton Spin-Pair require an extra input of - 1,442 MeV, so would Proton Paired with a Neutron be Stable. the Proton`s Charge distribution is all Negative is $p \equiv [\overline{u}\overline{u}\overline{d}] \equiv (-1\ |W^-Z^-)$, which is proved to be Unstable because Voltage is always Positive.

The CPT theorem implies that, if matter exists then so should Antimatter???

Because CPT theorem stands on the Energy scales of Planck`s and the Border-line of W-S Forces is $\rightarrow \overline{q}_{Weak-Strong} \equiv 5,546.10^{11}$ GeV $\leftarrow$, so it is impossible to be steady at Planck`s Energy of $\rightarrow$ $1,22.\ 10^{28}$ eV $= 1,22.\ 10^{19}$ GeV $\leftarrow$

From analysis on $\rightarrow$ *Cycloid - Anti-cycloid - Stability System* $\leftarrow$ The Still Systems of Space, Anti-Space DOES NOT mean that it is a case of Matter–Antimatter but it is $\rightarrow$ An State of Equilibrium in Caves $\leftarrow$

From Mechanics-Physics, *all Systems Possessing Elasticity $\equiv$ motion and Reaction to motion,* the called mass*, are capable of free vibration or vibration taking Place in the Absence of External Excitation* [7]. This Principle issues for Both Closed {The Nucleus} or Open Systems {The Orbitals}. In order to shift the u-d-Quarks of an Anti-Proton into a Proton Spin-Pair require an extra input of Energy-(MeV), so would Proton Paired with a Neutron be Stable.

THE MECHANISM OF ATOMS ORIGINATION [⊕↔⊖]

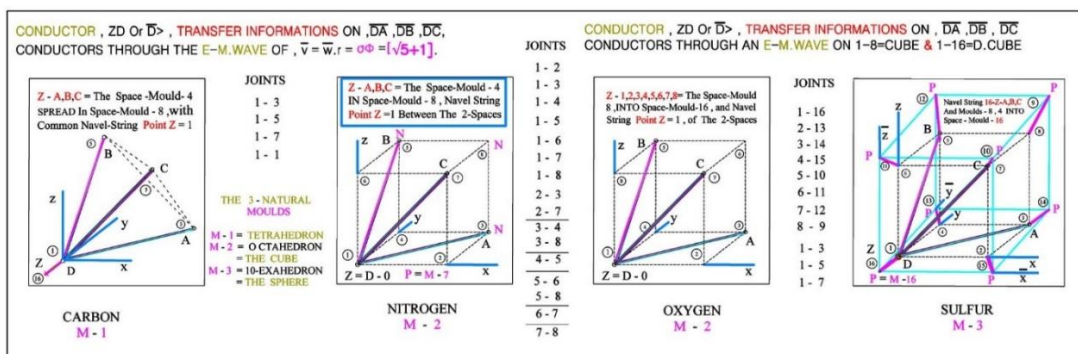## 15d. The Mater Antimatter 3-D Origination Mechanism [⊕↔⊖]

Figure 28A: The Carbon, Nitrogen, Oxygen, Sulfur, Atoms-Conductors Sustains Into the First 4-Dimentional Spinning, Tetrahedron - Cube – Sphere - Mould.
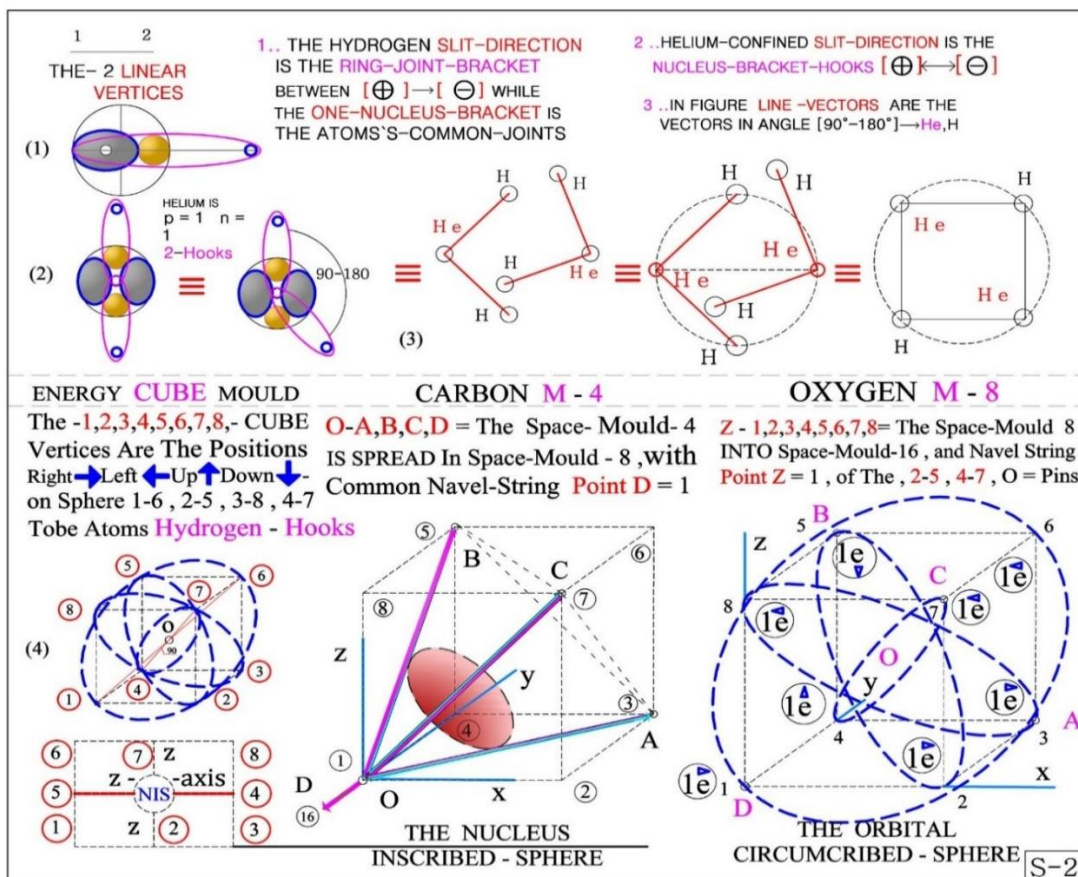

Figure 28B: The Hydrogen, Carbon, Oxygen, Atoms-Conductors Into the Sphere-Cube-Mould.

Deka hexahedron, Octahedron ≡ Cube, Tetrahedron ≡ 4-Points, Triangle ≡ 3-Points, Vector ≡ 2-Points ≡ The Closed-Conductor, 1-Point ≡ The Opened -Conductor ≡ The Bracket-Hook. Oxygen is the Element which fills 8 - 2 = 6 vertices of Cube as EL →

$$\left\{ \begin{matrix} 1e & 0e & 1e \\ 1e & \overset{\leftrightarrow}{2} & 0e \\ 1e & 1e & 1e \end{matrix} \right\} \equiv \left(\pm \frac{2}{2} \right),$$ where ⓪ is the first, Zero-Acting Cube filled with 1e,

therefore is the only Steady element which occupies the first Energy-Level ① with 2 Electron-Positions as ① = 2e = $\vec{2}$ Positions at $\vec{1}, \overleftarrow{1}$

The Electron being in the Hydrogen-cave Precesses because of the different axis of Rotation And Nutation`s, from the continuous and immense-communication to the effect of gravity g.

Since Electron is continually oscillating, with the Nutation-frequency f_N, so Produces a continuous and oscillating Magnetic-field –M- which in turn is the source of an oscillating Electric-field – E - which implies the Regeneration of each other, i.e. it is a Propagating Electromagnetic-Wave where E = B c, and with a quantum-Energy E = h f_N or E = 2μ.B, This Energy E consists the Hydrogen Bracket Hook HBH, or $[\overrightarrow{BH}]$ and it is the only free monad which can Bond to all Energy structures.

The Sphere-Cube-Structure of Atoms In Sphere Center –O- allows The Stability of the System, Per – Two electrons in Dipole Positions, 1 ↔ 6, 2 ↔ 5, 3 ↔ 8, 4 ↔7, consisting The-Positive Dipole-$[\overrightarrow{BH}]$, to be able to move → Into-In- Outside it ← and allow the Atoms-Bonding as this in Energy levels.*The Cube-Structure of Atoms and Orbits in the Out-Sphere* formulates +$[\overrightarrow{BH}]$ to those Dipole Positions which lack of one electron and so can PLUG-In the LOOP of the others. The Atoms with Zero Stable State are, The Hydrogen Bracket-Hook Into the Carbon encloses the Inscribed Sphere for the Nucleus, Into the Oxygen for the Orbitals, Into the Sulfur enclosed into the Circumscribed Sphere for the Atoms-Conductors Sustains.

The First 4-Dimentional Spinning, Tetrahedron-Cube–Sphere-Mould are, Fig-29
1. O-1-3-5-7 - → The First Solid Tetrahedron Structure in Nature,
2. O-1-2-3-4-5-6-7-8 → The First Cube with max. Positions e = $2.n^2$ = 8,
3. R - [O, A, B, C] → NUCLEUS IS IN the First Inscribed Sphere into Tetrahedron.
4. R-O-1, 2, 3, 4, 5, 6, 7, 8 → ORBITS ARE IN Enveloped Cube-Sphere of Tetrahedron.

Deka Hexahedron, Octahedron ≡ Cubes, Tetrahedron ≡ 4-Points, Triangle ≡ 3-Points, Vector ≡ 2-Points ≡ The Closed-Conductor, 1-Point ≡ The Opened -Conductor ≡The Bracket-Hook.

The Hydrogen Nucleus is kept in the Inscribed to the *Tetrahedron-Cube-System* where exist the Protons and Neutrons, while The Electrons of Hydrogen Orbits are kept into the Circumscribed, to the *Tetrahedron-Cube-System*. Both Equilibrium by following the Menelaus - Ceba`s Principles. [70]

Any Two Perpendicular Energy-Vectors, $|Q \rightrightarrows \overrightarrow{AK_A}$ = ↔ |, $|Q \upuparrows \overrightarrow{AK_A}$ = ↕ | of this Propagating Energy, FORM The Energy-Square, $|↔|.|↕|≡|Q \rightrightarrows |.|$ Q $\upuparrows| \equiv q_0$, on Conductor AK_A and Then Energy-Circular-Prism = $|AK_A|.\{Q \rightrightarrows \overrightarrow{AK_A}\}.\{Q \upuparrows \overrightarrow{AK_A}\} \equiv [\overline{Q}_x \overline{Q}_y].|AK_A| = | ↔ |.|↕|.|AK_A|$, i.e. An Energy-Circular-Cone which is a Moving Energy -Volume and Because from Cauchy equations of Stresses in three Dimensions, The Energy Stress remains Flat ONLY- WHEN the Plane-Section is a circle $[E_2]$ and The Square becomes circle, *Anti-Quadrature*. Because from Mechanics, The Hydrogen Nucleus is kept in the Inscribed to the *Tetrahedron-Cube-System* where exist the Protons and Neutrons, while The Electrons of Hydrogen Orbits are kept into the Circumscribed, to the *Tetrahedron–Cube-System*. Both Equilibrium by following the Menelaus-Cebas Principles.

Oxygen is the Element which fills 8 - 2 = 6 vertices of Cube and for Neon 10 -2 = 8, as

$$
\begin{array}{lll}
1e & 0| & 0/ \\
\text{Ox} \rightarrow \{\ 1\ e & \overleftrightarrow{2}|/ & 1\ e\} \equiv (\,{}^{+2}_{-2}\,),\ \textcircled{2} \equiv \text{Ne}\ \overrightarrow{2}_{1x8} = \overrightarrow{2} + 8 = 10 \rightarrow \{1 \quad \overleftrightarrow{2} \quad 1\}, \\
1e/ & 1e| & 1e
\end{array}
\qquad
\begin{array}{lll}
1 & 1 & 1 \\
1 & \overleftrightarrow{2} & 1 \\
1 & 1 & 1
\end{array}
$$

The Possible Orbits of Oxygen are two as, → 1e /-- $\overrightarrow{2}$/-- / 0 ← and → 1e |-- $\overleftrightarrow{2}$|-- 0 | ← for all the 8-Cube Positions. ⓪ is the first, Zero-Acting Cube and is filled with 1e, therefore is the only Steady element which occupies the first Energy-Level ① with 2 Electron-Positions as ① = 2e Positions at $\overrightarrow{1}$, $\overleftarrow{1}$. In the same way ① is the first One-Acting Cube and is filled with 2e, and so on, The Electron being in the Hydrogen -cave Precesses because of the different axis of Rotation and Nutation`s, from the continuous and immense-communication to the gravity g. Since Electron is continually oscillating with the Nutation-frequency f_N so Produces a continuous and oscillating Magnetic-field –M- which in turn is the source of an oscillating Electric-field – E - which implies the Regeneration of each other, i.e. it is a Propagating Electromagnetic-Wave where E = B c and with a quantum-Energy E = h f_N or E = 2μ.B, This Energy E consists the Hydrogen Bracket Hook HBH, or $[\overrightarrow{BH}]$ and it is the only free monad which can Bond to all Energy Structures.

The Sphere-Cube-Tetrahedron Structure of Atoms In Sphere Center –O- allows to issue The Ceba`s Theorem for 6-Stresses on the Inscribed Tetrahedron which Secure The Stability for the Nucleus-System, and for the Outer Electron-System the Stability is Obtained Per–Two electrons the Dipole Positions 1 ↔ 6, 2 ↔ 5, 3 ↔ 8, 4 ↔7, consisting The-Positive Dipole-$[\overrightarrow{BH}]$, to be able to move → Into-In- Outside it ← and allow the Atoms-Bonding as this in Energy levels. *The Cube-Structure of Atoms and Orbits in the Out-Sphere* formulates the +$[\overrightarrow{BH}]$ to those Dipole Positions which lack of one electron and so can PLUG-In the LOOP of the others.

Conclusion
1. The Forces of Atom`s NUCLEUS, are Holded from → The Inscribed Sphere In the Tetrahedron, which follows the Ptolemy`s and Ceba`s Vectors Structure.
2. The Forces of Atom`s ORBITALS, are Holded from → The Into the Cube, Circumscribed–Sphere Vectors Structure.
3. The Forces of Atom`s POSITIONS, are Holded from → The on Cube Inscribed Tetrahedron Vectors Structure.

16d. The Natural Electromagnetic Energy-Tetrahedron and, The 3- Conductors Into The Energy - Cube and Spheres [102]
In Fig-29 The Electric - Magnetic Field of 3-Conductors which lie on the DABC Tetrahedron.The Stability of the → {⊕ 4-Space [D A B C]} Regular – *Tetrahedron*, occurs INTO the {⊖ 8-Anti-Space *Cube,* [DA$_1$A D$_1$, B B$_1$CC$_1$]}, and The Positive → {⊕ 8 - Space – *Cube*, [DA$_1$A D$_1$, B B$_1$CC$_1$]}, INTO The {⊖ 16-Anti-Space [1,2,3,4,5, 6, 7, 8 - 9,10,11, 12, 13,14, 15, 16]} *Sphere Cube on Vertices.*= Point [The Point 16 ≡ |⇉|Z|] consists the Navel-String Gate into the Triangle-Circle-System {Z-(ΔD,ABC), Δ[T1T2 T3]} of the Stationary Bases which Results on the 2 -Anti-Parallel-Strands. The Dual Photon $\bar{v}\ [\frac{\sigma\Phi}{2\pi r} + \frac{\sigma}{2\pi r}] \equiv \bar{v}.[\boxed{\bar{f_n}} + f_n\ ]$, occupies Stresses = σ and velocities $\bar{v}$, in

The Tiny-caves r. The Colours in light, are the Still-Sub-Units in Storage $\rightarrow[\bar{v}.\boxed{\bar{f}_n}]\leftarrow$ and exist as Frequencies of $\rightarrow$ Violet, Blue, Green, with their Complementary Yellow, Orange, Red $\leftarrow$ Every 8-electrons are vibrations on Atoms-Cube-Structure {A Tetrahedron in Cube in a Sphere} whether it be Sound or Light. Above Structure is followed by all Compounds. Molecules are Systems consisted of The PERIFERAL $\equiv$ *Skeleton* M_{16} and The CENTRAL $\equiv$ *Fittings* M_8, and the ACCESSORIES $\equiv M_4$ or M_2, M_1. This Property of Atoms and of the Compounds is The Critical-Valve of Switching the motion as this happens in the Electro-magnetic Solenoid Valves with High or low Pressure and flow rates directly or Not.
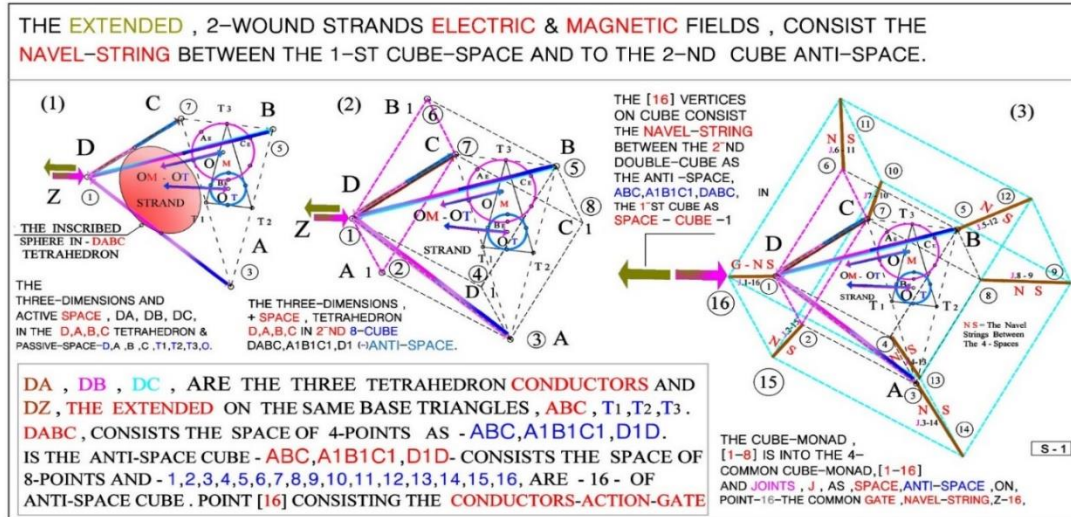

Figure 29: The Electric - Magnetic Field of 3, Conductors Results on 2 -Anti-Parallel-Strands.The Stability of $\rightarrow\{\oplus$ 4-Space [D A B C]} Regular - *Tetrahedron*, IN {$\ominus$ 8-Anti-Space *Cube*, $[DA_1B\,D_1, C\,C_1AB_1]$}, and The $\rightarrow\{\oplus$ 8- Space $[DA_1BD_1, CC_1AB_1]\}$ *Cube*, INTO The {$\ominus$ 16-Anti-Space [1,2,3,4,5, 6, 7, 8 - 9,10,11, 12, 13,14, 15, 16]} *Sphere Cube Vertices*. Point [16 $\equiv |\Rightarrow|Z|]$ consists the Navel-String Gate in {Z-(ΔD, ABC),Δ[T1 T2 T3]} Stationary Bases. Stability Analysis in [88]

17d. The Prior Conclusions [89]

1. Atom Structure is The Quantization - Process of frequency f_{ph} and Gravity g, in Energy Hydrogen Cave. Atom Cave is a Potential of 13,60 eV becoming from the Energy-Cave andKepler equation, $a^3 f^2 g = 1$, or from $a = \sqrt[3]{1/g\,f^2} = 2,1127839.10^{-11}$ m, and the Planck cave as $L_P \equiv e^{-i.\left(\frac{5\pi}{2}\right).10} \equiv \sqrt{3}.\pi.\ 1, 616199.10^{-35}$ m. The why such was prior referred in 6d. The Nucleus Protons are held together by the Spin-Paring of the Spins into the Nucleus becoming from the Ceba`s Energy triangle. The Light velocity vector $\bar{v} = \bar{c}$ is Acting on Planck`s-cave, $r = L_P$, and finds Impedance mass m_g, and Becomes the Centrifugal-Force F_g of the Cave and Equal to Gravity $m.v^2/r$, while The Light velocity vector $\bar{v} = \bar{c}$ Acting on an-cave, $r \neq L_P$, finds The-Impedance, Z_c of the Velocity $\bar{c}$, and Becomes the minimum-Energy-cave in L_P, and be Equal to $E \equiv$, $r\,Z_c\,\bar{c}$, where E =The Planck`s-Total-Energy $E_p = h = 6,62606957.10^{-34}$ J.s, r =The min-Energy cave of Hydrogen, Z_c = The Total Impedance in Universe $\equiv$ Space + Anti-Space from velocity motion $\bar{c}$ = The light-velocity in m/s. Equation becomes $\rightarrow r\,Z_c\,c = E = h \leftarrow$ The Three

Elements $\equiv$ Digits of Material-Geometry are $\{\oplus, [\oplus\leftrightarrow\ominus], \ominus\} \equiv [+, 0, -]$ and as before for $\log_x x$ and Base $x = 10$ then, $\log_{10} 10 = 10^{10}$ is the Growth, Impedance is the Anti - *Growth* or *Anti-logarithms* 10^{-10} of their g - Position, so Antilog $_{10}^{-g/10}$ = 0,10460975. For the three dimensions Total-Impedance Z_c = 0,10460975.$(10^{-10})^3$ = 1,046097.10^{-31}, and H-cave $r_H = \frac{h}{c.Z_c} = \frac{[6,62606957.10^{-34}]}{2,99798.10^8 .1,0460975.10^{-31}}$ = 2,1127839.10^{-11} m. Which is the known Hydrogen cave i.e. The Quantization of Energy $\equiv$ Angular-Momentum $\equiv$ r m v = $\overline{B}$, which is produced from the three Elements r = The Planet-Focus line, m = The mass Z_c, v = The velocity of mass follows Kepler-second-law where for radius r, sweeps out Equal-Areas in equal times so *Consequently* Energy-Quantization becomes from equation $a^3.f^2_n.k = 1$ where k = $[\frac{4\pi^2}{GM}]$. The Unit-Work occurs in Hydrogen cave following Kepler-first law in Orbits, $4\pi^2.r^3f^2_p = k$, which k = The Quantized Work W = $v^2 [\frac{h}{2\pi}]$ or Work = k = $4\pi^2.r^3f^2_p$, and being equal to the Unit-prior issues, k = $4\pi^2.r^3f^2_p = \frac{1}{f^2 r^3}$ which results to the Resonance frequency f_R as $f_R = \sqrt[4]{\frac{1}{4\pi^2 m r^3}}$ of cave r, and from f_R the Resonance Step-cave $\rightarrow$ a = $\sqrt[3]{\frac{1}{g f_R^2}}$ .. (1) Atoms-Cave is a, Heap of Masses M_T, *Protons Electrons and Neutrons*, and Charges Q_T *Protons and Electrons,* following the Lorentz force equation F = q.[E + v x B] where E = 0 and Force is $\overline{F}$ = q. $\overline{v}$ x $\overline{B}$. The Created Magnetic-Field $\overline{B}_F$ = $|\frac{2\pi.M_T}{Q_T}|$ f, where the *Energy $\equiv$ motion* is Quantized, i.e. Magnetic-Field $\overline{B}_F$ is the Energy-Store of motion, $\ddot{x} + w^2 x = 0$. The Resonance Energy E_R, becomes from The Moving Electron in Orbit of charge $\overline{q} \equiv \ominus$ with the Orbit-Velocity-Vector $\overline{v} = \sqrt{\frac{2}{m}[E - \{\frac{k}{r} + \frac{L^2}{2m r^2}\}]}$ = 0, and this because charge $\overline{q}$ Creates IN Orbit, r, the Varying and Perpendicular Magnetic-Field, $\overline{B}$, which in time-turn Creates the Electric-field $\overline{E} \perp \overline{B}$, with resultant force F acting on Electron. For c = 0 then in Orbit exists Only-Potential-Energy of Orbit, as E = $\frac{k}{a} + \frac{L^2}{2m a^2}$, and using Kepler's law for equal-areas k = $\frac{L}{2 m}$, and constant Planets relation $\frac{T^2}{a^3}$ = k = $[\frac{4\pi^2}{G.m}]$ = 2,97.$10^{-19}(s^2/m^3)$ in Planck's length a = $\sqrt[3]{\frac{1}{k.f^2}}$, Then k = $1/a^3.f^2$, and Energy E = $\frac{1}{a^3.f^2}[\frac{1}{a}] + \frac{L^2}{2m a^2} = \frac{1}{a^4.f^2} + \frac{L^2}{2m a^2} = \frac{1}{a^2}[\frac{4\pi^2}{c^2} + \frac{L^2}{2m}]$, or E = $\frac{1}{a^2}[\frac{4\pi^2}{c^2} + \frac{L^2}{2m}]$, a^2 = $[\frac{1}{E}].[\frac{4\pi^2}{c^2} + \frac{L^2}{2m}]$ and Stored in the Magnetic field i.e. In Hydrogen cave Exists only Potential-energy L with *Orbit that of Circle*. From Electro-Mechanical Equation, q $\overline{B}_L$ = 2π m f, exploited in Hydrogen-Atom creates the *Uniform Magnetic-field* $\overline{B}_L$, which IGNORES, the velocities in (1) and Capacitance in Energy-levels (1-2). The Heap of masses and Charges FOLLOWS Permutation - Rules as the Neutral-quantities and Newton-Laws as well as the Vibrating equation, m $\ddot{x}$ +w^2 x = 0. Hydrogen - Cave r_H = is a *Uniform-Magnetic- field,* Because $\overline{B}_L$ is Independent of the Electron-velocity v_e, and of the Cave-radius, r, therefore electron is NOT accelerated in the Magnetic-Field, but its Strength is Dependent on frequency, f, only. This demand formulates the Hydrogen-Energy-caves and the Quantization of Energy $\equiv$ its motion, beginning from the Nucleus and extended

to Orbits-Planets occupying, the Resonance-Energy $E_R = \frac{1}{a^2}[\frac{4\pi^2}{c^2}+\frac{L^2}{2m}] = \frac{1}{a^2}[\frac{4\pi^2}{c^2}+\frac{S^2}{2m}]$...(2) which is a Signal.

2. The Total Impedance Z_c, is either Growth or Anti-Growth depending on the velocity $\bar{c}$ *Energy,* where Element Number = Positions, h. and Neutrino-cave is $a_v = 7,0.10^{-21}$ m Neutrino-Antineutrino exist as Matter-Antimatter in Still-State of a_v cave.

3. The Total Impedance $Z_c = 1,0460975.10^{-31}$m of the Three elements [+, 0, -] $\equiv \oplus, \varnothing, \ominus \equiv$ Breakages $\{s^2 \equiv +$ Charge, $- s^2 \equiv -$ Charge, $2s^2 \equiv 0$ Charge$\}$, Issue in Common circle 2r of STPL-Line which is the Physical-Rotor for the Cosmic-Particles origination

4. The Duality-Photon Energy is $\rightarrow \{\bar{c}.\boxed{\bar{f}_n} + \bar{c}.f_n\}\leftarrow \equiv \rightarrow$ Particle + Wave $\leftarrow$ and is NOT becoming from STPL Mechanism, BUT from Prior it is a Material-Point. [91]. From Voltage $V = \frac{h.f}{q} = \frac{h.c}{q.\lambda}$ and $\lambda = 10^{-7}$m, $V = \sqrt[2]{\frac{1}{a^3}} = \sqrt[2]{\frac{1}{10^{-21}}}.4,1361232.10^{-15} = 12,398$ eV Photon–Anti-Photon Do NOT exist as Matter-Antimatter because Still in $\bar{c}$ Vector.

5. For the in-Planck`s length Spin-Energy Gamma-ray, γ, is the minimum Energy in caves. $E = h f / q = 4,1361232.10^{-15} f = 4,1356586.10^{-15}.\sqrt[2]{\frac{1}{r^3}} \leftarrow$ eV and is in the Smallest acceleration Space-cave $a_\gamma = 1.10^{-15}$ m where issues $f_\gamma = 3,1622776.10^{28}$ H. The same issues for Gamma-ray where Does NOT exist Matter-Antimatter, from Still in $\bar{c}$ Vector.

6. For the Beyond Planck`s length Spin-Energy is $\rightarrow E \equiv [\Phi \frac{\sigma}{4\pi r}].\overline{B} \equiv \frac{|B|^2}{2\pi^2 r^4} \leftarrow$

7. The Resonance-Energy for caves is $E_R = \frac{1}{a^2}[\frac{4\pi^2}{c^2}+\frac{L^2}{2m}] = \frac{1}{a^2}[\frac{4\pi^2}{c^2}+\frac{S^2}{2m}]$ and is a Signal

8. From Lorentz-Force $F = \bar{q}\ \bar{v}x\overline{B}$ $_F = 2\pi.\bar{q}\bar{v}.[\frac{f=1}{g}]$ equation, and from Nutation-Force $F = [\frac{\bar{v}.S}{r^2}]$ is found the Common Force Charge $\bar{q} = Q_+ = [\frac{g.S}{2\pi r^2}] \equiv$ originating cave-Forces. i.e. Forces $Q_+ = [\frac{g.S}{2\pi r^2}] = \frac{9,8076754.[5,691952.10^{-34}]}{2.\pi.[1,602.10^{-19}].r^2} = 5,5457194.10^{-15} [\frac{1}{r^2}]$ eV...(Forces)
$\rightarrow$ The Origination of, $\pm$ Forces from $\pm$ S, Does NOT mean Matter-Antimatter, $\leftarrow$
$\rightarrow$ because $\{+ M, - M\}$ is the Still-State of the constituents $\rightarrow$ Energy $\overline{S}$ and Space $\bar{r} \leftarrow$

9. From $\bar{q}_{W-S} = \frac{g.\overline{S}}{2\pi r^2} = \frac{9,8076754.[5,691952.10^{-34}]}{2.\pi.[10^{-17}]^2} = 8,8850576.10^1$ J / $1,602.10^{-19}$ eV = $5,546.10^{20}$ eV or Border-line of W-S Forces $\rightarrow \bar{q}_{Weak-Strong} \equiv 5,546.10^{11}$ GeV $\leftarrow$

10. Stress σ, occupies Minimum and Maximum because is related to frequency and velocity From $f_{ph} = [\frac{\sigma}{2\pi r} + \frac{\sigma\Phi}{2\pi r}] \equiv \frac{\sigma+\sigma\Phi}{2\pi r} = \frac{\sigma[1+\Phi]}{2\pi r} = \frac{\sigma[\Phi]^2}{2\pi r}, \rightarrow \sigma \equiv \frac{f_{ph}.2\pi.r}{\Phi^2} \equiv \frac{w.r}{\Phi^2} \equiv \frac{v}{\Phi^2} \equiv \bar{c}\frac{1}{\Phi^2}$ Being The-Stress-Way of Photon-Storages $\boxed{\bar{f}_n} \equiv \frac{\sigma}{2\pi r}$ and Photon-Information $f_n \equiv \frac{\sigma\Phi}{2\pi r}$ From force $G \equiv \sigma.\Phi^3 \equiv \Phi^2.[\{\sigma\ \Phi\} \equiv [\frac{2B}{\pi r^3}] \equiv 2\pi f_P\ r \equiv w\ r \equiv \bar{v} \equiv m\ a = m\ g = \bar{c}]$ then Stress $\{\sigma\ \Phi\} \equiv [\frac{2B}{\pi r^3}] \equiv 2\pi.f_P\ r \equiv w\ r \equiv \bar{v} \equiv m\ a = m\ g = \bar{c}]$ is dependent on Total-Prior. As soon as $\rightarrow$P = {The Space +Anti-Space Positions in Universe},become Inadequate for an min-Energy-Storage $P = e^{-i.(\frac{\pi}{2}).b} = 0,207879576.b = 1,507.10^{-7}$m,then Motion $\equiv$ Energy is first filling The minimum cave, r, and with the Necessary Velocity-Vectors $\rightarrow$ Burst Into another cave $a > P = 1,507.10^{-7}$m in L_p, connected to G, and which Is an Overflow of the Energy in the,

Space +Anti-Space Positions [58]. From relation $E_{Ph} \equiv \vec{c}. \{\boxed{\overline{f_n}} + f_n\}$ is seen the Storages and from $\overline{q}_{Photon} \equiv \frac{\vec{c}.\sigma\Phi}{2\pi r} \equiv \frac{\overline{w}.\sigma\Phi}{2\pi}$ the Stresses.

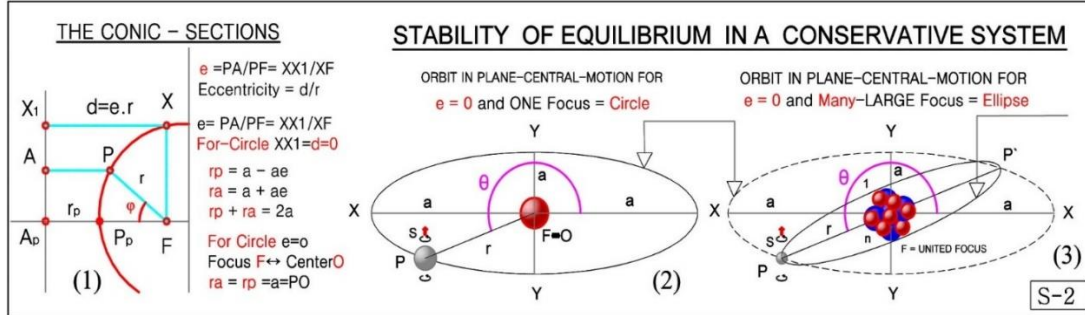## 18d. The Stability of Equilibrium

Figure 30: The Two Points Problem Stability of Equilibrium with One or Two Planets.

Electron is created through the vibration, f_n , in the *Energy-Space,* g - π, *meters.* Electron cave is the minimum cave of light-velocity c to enter and possessing max

Energy of L_p which is h. From velocity v = n.π.c, is seen that *light-velocity is the* Quantum of Unit-velocity in L_P . From above In-Planck`s-length velocity $\overline{c} = w \ r = \frac{\sigma.\Phi}{r_n} r = \sigma \ x \ \Phi = \frac{G.r}{L_P \Phi^3} \Phi = \frac{G.r}{\Phi^2 L_P}$ and from relation $G \equiv \sigma \ x \ \Phi^3$ then $\rightarrow [\overline{c} = \frac{G.r}{\Phi^2 L_P}] \leftarrow$ which is Light-velocity in L_P . For the Out-Planck`s-length velocity equation $\overline{v}_m = n. \overline{c}. \{\boxed{\overline{f_n}} + f_n\}$ and from equation $\overline{v}_m = w \ r = n.π.c$, f $= [\frac{n.c}{2r}]$, then $\rightarrow \overline{v}_m = n. \overline{c}. [\boxed{\overline{f_n}} + f_n\} \leftarrow$ which is velocity-Out L_P . Photon was proved to be a Material-point in cave, r, where its Inner Storage is *the Stationary-Standing-wave* the Electromagnetic-Wave $[E^2+H^2] = 2(2r).c.\sin 2\varphi$, with n Lobes representing the *Normal mode vibration* with frequencies $f_n = n. \ f_1 = \frac{E}{h} = \frac{n.v}{4r} = \frac{n\sigma}{2\pi r} [1+\sqrt{5}]$, and Outward the Storage *is the Propagating Electromagnetic- Wave.* $\rightarrow \{[\varepsilon E^2+\mu B^2] = 2.\lambda c.\sin.2\varphi\} \leftarrow$ *where* Particle 2r = n λ, Cave r, is the *Electromagnetic - Energy-Storage*, and Electromagnetic-Radiation E, B, is *the* Wave Conveyer of Cave, r, with frequency f = Energy E / Planck-constant h, or f = E / h.

12. The Three Elements ≡ Digits of Material-Geometry are,{⊕, [⊕↔⊖], ⊖}≡ [+, 0, -] The Permutation, *arrangement*, of the Two-Elements $P_1^2 = 2$, i.e. the $\rightarrow$ [⊕,⊖] - [⊖,⊕] The Three-Elements in Space need $P_1^3 = 3.(3-1).(3-2) = 6$ Positions and the same for Three-Elements in Anti-Space need $P_1^3 = 3.(3-1).(3-2) = 6$ Positions, and Total Places $\rightarrow P_1^3. P_1^3 = 6 \ x \ 6 = 36$ Positions for Spaces and Anti-Spaces as Impedance, and as before maximum Growth for $\log_x x$ and Base x = 10 is $\log_{10} 10 = 10^{10}$ and for the two elements [⊕, ⊖], the Growth is $10^{[10]^2} = 10^{20}$ Positions ≡ Distances ≡ r, and since also issues $10^{-x} = \frac{1}{10^x}$, then Impedance $Z_{\pm}$ for Two Elements in Space Anti-Space, $Z_{\pm} = 36.10^{-20}$ m and for $\rightarrow \overline{v} = \overline{c} = \frac{F \ \Phi}{A = b} = [\frac{G \ \Phi}{A}] = [\frac{6,673692.10^{-11}.1,6180339887}{36.10^{-20}.}] = 2.9995163. 10^8$ m/s, and 200 times the Impedance $= 200.[Z_{\pm}] = 3,6.10^{-19} = 7,2.10^{-21} \equiv$ Neutrino-cave $a_v = 7,2.10^{-21}$ mBecause the Duality-Photon $\rightarrow \{\overline{c}. \boxed{\overline{f_n}} + \overline{c}. f_n\} \leftarrow \equiv$ Stationary-Storage in Standing-Wave +Travelling -Wave $\rightarrow$ Particle + Wave $\leftarrow$ *therefore* Force F is the

Space→ Anti-Space influence of the [⊕], [⊖] Charges at the Two-Positions of Wavelength λ = 2r.

The Two Positions in Wavelength follow laws of Mechanics and the Cauchy - Stresses.

$\Rightarrow$ From Lorentz-Force F = $\overline{q}$ $\overline{v}$x$\overline{B}$ $_F$ =2π.$\overline{q}\overline{v}$.$[\frac{f=1}{g}]$ equation, and from Nutation-Force

$\Rightarrow$ F = $[\frac{\overline{v}.S}{r^2}]$ is found the Common Charge $\overline{q}$ = Q$_+$ = $[\frac{g.S}{2\pi r^2}]$, which Originates Forces as,

Forces Q$_+$ = $[\frac{g.S}{2\pi r^2}]$ = $\frac{9,8076754.[5,691952.10^{-34}]}{2.\pi.[1,602.10^{-19}].r^2}$ = 5, 5457194.10^{-15} $[\frac{1}{r^2}]$ eV...(*Forces*) Voltage in caves becomes from Lorentz-force F = $\overline{q}$ $\overline{v}$ x $\overline{B}$ $_F$, from the Magnetic field q v B = mv²/r → q B r = m v = m r w, and Energy equation E = h f = F / c = q V, i.e. Voltage V in a cave r is → V = $\frac{h\,f}{eV}$ = $\frac{h}{eV}$ $^2\sqrt{\frac{g}{r^3}}$

= $\frac{6,62606957.10^{-34}]}{[1,602.10^{-19}].\sqrt{r^3}}$ = 4,1356586.10^{-15}.$^2\sqrt{\frac{g}{r^3}}$ ← All Particles and Forces End in STPL, Pascal`s, P$_A$, and Desargues`s Points, D $_A$. AK $_C$, Creates the, + Force G$^+$= ⊕→∅, and AK $_C$ = ⊕←∅, Creates the, – Force G$^-$.

....

STPL / Forces F → $\begin{matrix} D_A & P_B & D_C & & P_A & D_B & P_C \\ G & W & X & (I) & \gamma & H & Z \end{matrix}$

Positive (+) Charge-Magnitude / → | \ ← Negative (-) Charge

Charge Q$_\pm$ → $\frac{2}{3}$ $-\frac{1}{3}$ $\frac{2}{3}$. $-\frac{1}{3}$ $\frac{2}{3}$ $-\frac{1}{3}$

Quarks. q → u   s   t. d   c   b

Anti-Quarks $\overline{q}$ → $\overline{u}$ $\overline{s}$ $\overline{t}$. $\overline{d}$ $\overline{c}$ $\overline{b}$

Charge Q$_\pm$ → 0   −1   0. −1   0   −1

Leptons. L → ν_e μ^+ ν_τ. e^- ν_μ τ^+

Anti-Leptons $\overline{L}$ → $\overline{\nu_e}$ $\overline{\mu}$ $\overline{\nu_\tau}$. e^+ $\overline{\nu_\mu}$ $\overline{\tau}$

13. In [75], The Vacuum, is the In between distance [10^{-62}-10^{-35} m] ≡{FMFM} -{[PNS] ≡ Primary-Neutral-Space [23]}≡ the Space under Planck`s scale such in microcosm as in macrocosm, is the Ocean of the Spins of the Material-Points of [PNS]-Layer due to the → Primary - Vibrations ≡ *Neutral attractive Field* ≡ Electrostatic [⊕↔⊖] field ← i.e. It Is a Uniform - Electric-Field with its Field - lines Parallel and Strength the same everywhere On Field - lines. This Property of Attractive-Forces is issuing in the *Primary-Material-Point-Layer*. Above Property of a Uniform-Electric-Field clues an Electrostatic force in Vacuum. The Zero-Periodic-acceleration [→ ←] = 0, *which issues also in all Complex and all Groups of these Energy-Structures*, is on Unpaired-M-Points-Spins so that Spins Produce a net Magnetic-field that lined between the Two-Primary-Poles [(+),[↔],(-)], and turn the whole Universe into a Huge-Magnet differently if, in a pair, the opposite directions cancel-out the effect of their Partners, therefore the called, *Gravitational Constant*, G, *is a force*, F, which Strength is Constant between the Primary-Poles that of → *Existence* [+] *and that of Non-existence* [-], [⊕↔⊖] *Opposites* ←. i.e.

That we call Vacuum is the Electric-Field of a HUGE – Electrostatic – Magnet
In which are Originated, *The In-Out Positions,* of all Cosmic Particles : [91]

$\Rightarrow$ In Mechanics, The equality of the Two Opposite-Energy-quantities $E_K = E_P$, is conserved in a common loop $\rightarrow \sqrt{\dfrac{k}{md}}$ eV $\leftarrow$ meaning that when two Photons strike each other then the Produced Work is kept in the cave r, as the fundamental frequency $f_1 = n\dfrac{\sigma\Phi}{2\pi r}$ and which is equal to The Eigenvalues and Eigenvectors of the Photons-Heap.

Above Procedure and because of their *common Inertia of Atoms-masses* alllows us to accept the *angular- velocities of each Atom separately*. When the Quanta of Energy Rotate in a cave and exists, Maxwel`s Electric Displacement current the Stability of $\{\oplus$ -Space $\equiv$ [Electric Wave]$\},\{\ominus$ -Anti-Space $\equiv$ [Magnetic Wave], Exists In their Sub-Space $\equiv\{[\oplus\leftrightarrow\ominus]\equiv ds\equiv[\oplus\leftarrow ds\rightarrow\ominus]$ –or– In The Neutral-Space $[A_E, B_E, C_E]\}$ In Photons, Colours are Still-Sub-Units of Storage $[\overline{v}, \boxed{\overline{f_n}}]$, and exist as Frequencies Violet, Blue, Green, which Stabilize with their Complementary colors Yellow, Orange, Red, of wavelength $d = \lambda \rightarrow \lambda_{min} \approx \lambda_{max} = 3.10^{-7}m \approx 3.\sqrt{3}.10^{-7}m$.

$\Rightarrow$ In any Moving System $E_T = E_R + E_K = \dfrac{\pi c^2}{8} r^3 + \dfrac{1}{2} m.v^2 = 3,535.10^{16}. r^3 + \dfrac{1}{2} m.v^2$, Light-Velocity $\overline{c}$ of Photons becomes from the Action of G on Planck`s Length $L_P = = r_P = 1,6162.10^{-35}$ m cave r, and when cave $r = \dfrac{h}{c.Z_c} \neq L_P$ originates Hydrogen-cave. In Euler`s Rotating Rigid Body.The T-Work is $W = 2L = \overline{B}.\overline{w} = J.w^2 \equiv h.f_n$, and for m mass $W = h f_m$, Angular-Momentum $\overline{B} = \dfrac{2L}{\overline{w}} = \dfrac{2L}{2\pi f} = [\dfrac{2L}{2\pi}].[\dfrac{1}{f}] = \dfrac{Constant}{2\pi}[\dfrac{1}{f_m}] =$ SPIN While In Central-motion, Kepler constant $k = 4\pi^2. r^3. f_P^2$, or $1 = [\dfrac{4\pi^2}{k}]r^3. f_P^2$, $1 = c. r^3.f_P^2$ where for $\rightarrow r \rightarrow 0$ then $f_P \rightarrow \infty \leftarrow$, a case of a Black-Hole in any Central motion.

20d. SINCE The Energy in Black Holes is $\rightarrow B_{BHE} = 2.\pi^5.r^3.f^2 = (\pi r)^3.w^2 = (\pi r)^3.[2\pi f]^2$
i.e. Velocity in Black-Holes is Related to Cave, r^3, and Energy w^2 times of the light velocity then cave r again is Affected from the (Equilibrium Quantum Raw-Energy). This means that Property of G is the only Force which effects on the Rest-Space *in Torsional motion*, and from light velocity vector $\overline{c}$, the gravity g only.

The Stability of Space -Anti-Space, occures IN the Neutral-Space. Since G Affection is for all Planes then this issues also for the Black Holes $G = k_E g = g. k_L g_L = k_{BH}. g_{BH}$.

Using Kepler constant $k = 4\pi^2.r^3. f_P^2$, or $1 = c. r^3. f_P^2$, from acceleration $g = \dfrac{2\pi v}{T}$ and from velocity $v = \dfrac{2\pi r}{T} \rightarrow$ then frequency $f_1 = \sqrt{\dfrac{g}{4\pi^2 r}}$ in Stationary Photon $[B_P \equiv f_{1=N}, f_2, f_3, f_R] \equiv [E^2+H^2] = 2(2r)$. $\overline{c}. \sin 2\varphi$, Since for Both issue $\Rightarrow$ Planar $[\rightarrow r \rightarrow 0$ *then* $f_P \rightarrow \infty \leftarrow]$ and Atoms-Black-Hole $[\rightarrow f_P \rightarrow 0$ *then* $r \rightarrow \infty \leftarrow]$ So all above Issue for Black-Holes.

The Hidden Pattern of Universe is the, STPL–line - Mechanism, which is Off the Spaces and connects them [*Maintains, Conserves, and Supports All Universe*], so consists the Recycling Navel String of Galaxies for macrocosm, and for Elementary -Particles into microcosm. Since The Spaces $[\oplus - \varnothing - \ominus]$, of {STPL–line-Mechanism} are effective on their Common circle, and they Launch Fundamental Particles on STPL-Straight - line, And Since *Common circle exists on their*

Common-Sphere, THEN the Infinite STPL- Straight- lines Launch The Energy Quantity Q_{pp} of the Fundamental Particles, to all Universe and INTO *The Planck`s Confinement only*. Failure in launching The, STPL Straight- lines-Energy, then Opposite Action creates Black-Hole. i.e. The Planck`s cave,10^{-35} m, is The Safety-Valve $\equiv$ The Critical State for the Stress Ellipsoids,$\overline{B}\ \overline{w}$, Vectors in order that this Total-Energy to Superflow and be Still into Vacuum $\equiv [10^{-62}$ - 10^{-35}m]. This Vacuum between the |Gravity cave - Planck`s cave| CONSISTS the BLACK - HOLES - CHAOS, as the Recycling–Energy, into which

→ The {Energy – Space - Monad $|\overline{R}| \equiv |AB|$}, Vanishes $\equiv$ Decomposes ←

→ The Opposite Energy case is when Monad $|\overline{R}| \equiv |AB|$} Composes the Objectivity ←

$\Rightarrow$ When the Energy in Planck`s cave L_{PLA}, Decreases to an Voltage < $3,695.10^{30}$ V then motion $\equiv \rightleftarrows \equiv$ Energy between the Two Opposite elements of M-P-Dipole [$\oplus \cup \cup \ominus$] Creates the Positive-Angular -velocity-vector $\overline{w}$ ↑, which Rotates in the Symmetrical to Neutral circle axis k = ↑ with respect to the Interchangable variable $\overline{B}$ ↑.

So thus,

1. Are defined the Unit-Energy - Vectors, $\overline{R} = \sigma / \overline{B} = \sigma / J.w^2$, which Exist ON the Unit – Space – Monad $|AB| \equiv |\overline{R}|$, and which is {The Energy – Space – Monad $|\overline{R}| \equiv |AB| \equiv$ The Existing Universe}.

2. The Forces of The → Vacuum - PNS ← are Hold from The $\Rightarrow$ Energy-Ellipsoids, $\overline{B}\ \overline{w}$, of the [STPL] - Physical - Mechanism.

3. The Forces of The → Atom`s NUCLEUS ← are Hold from The $\Rightarrow$ Inscribed-Sphere Into Tetrahedron following Ptolemy`s - Ceba`s Vectors.

4. The Forces of The → Atom`s ORBITALS ← are Hold from The $\Rightarrow$ Cube`s - Circumscribed– Sphere Vectors Structure.

5. The Forces of → Atom`s POSITIONS ← are Hold from The $\Rightarrow$ Cube`s Inscribed Tetrahedron Vectors Structure.

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