THE ORIGIN OF THE FUNDAMENTAL PARTICLES IN PLANCK`S CONFINEMENT

---

*This article presents unification of **quantized Space** and the **quantized Energy** through the Geometrical **Primary Dipole** with the universal Principle of the **Virtual Work** .Collision of Dipole creates Breakages and **re-collision** with them **transfers** to them **Thrust** the velocity vector , **that creates** all **Particles**.*

Markos Georgallides : Tel-00357-99 634628
Civil Engineer(NATUA) : Fax-00357-24 653551
N .Mylanta St 15 , 6010 , Larnaca Cyprus
Expelled from Famagusta town occupied by
The Barbaric Turks - Au.1974 .
Email <georgallides.marcos@cytanet.com.cy>

1.. Introduction .

A.. The Flow Plan of the Space - Energy Universe .

1.. It was shown in [9-18] what is Primary Neutral Space as well as Infinity [15] and rotational energy Λ [22] so [PNS] → [A,B – PA⁻,PB⁻] ≡ Work W = |ET | = [|Λ|.∇ + Λ x∇] → W = ∫ P.ds = 0 → so **Time T = 0**
Cause is , because Primary **Point A** is nothing and ***is Quantized as*** → **Point B** (where then is following *Principle of Virtual Displacements W =∮ P.ds = 0*) = Force x Displacement = Energy x Space , *and according to ancient Greek Philosopher* Anaximander [**The non-existent (i.e Point A) , Exist when is Done , it occurs as (Point B)** = [Το μή Ον , Ον γίγνεσθαι] = [Τό τίποτα υπάρχει Όταν αυτό γίνεται] time is not existing [21-22] .
The relative Range is Displacement AB → which is the Space and Anti-space , AB = **0 → k → Infinity .**
2.. [PNS] → [|Λ|.∇ + Λ x∇] ≡ z̄ ≡ [λ , ± Λ x∇] ≡ |z̄o| ^{w}. e^ { [Λ⁻∇I / √Λ'Λ⁻] . [ArcCos (w|λ|/2 |√z̄'o.z̄o|] } which is the beyond gravity forced field . [25] . As in case (1) → there is No change of ds → so **Time T = 0 .**
Cause is the moment Lever of Primary Forces and is Quantised as→ Spin < The Spin modelling of microscopic description > [19] . The relative Range of the Infinite Points is the Displacement AB to **Infinity.**
3.. [PNS] → [λ , ± Λ x∇] = zo = Λ = nRT/V(λ = C) → Gas equation → No change of ds → so **Time T = 0**
Cause is the Heat causing vibration on molecules and is Quantised as → Intensity (Pressure) between them .
The relative Range of the Infinite Points in Displacement AB = λ is wavelength λ **.**
4.a. → **k1** z = |zo|. e $^{- i. (9.π /2).10}$ = Energy Under Planck length , *The Tank Cavity of Gravity , where* **v̄** E **= 0** and ET = Λ.**v**B + Λ x **v**B and is the *accelerating removing , rotating energy* Λ to **v**B , m = **0** and ET = Λ.**v**B.+ Λ x **v**B and it is the *linearly removing , energy* Λ towards **v**B , → No change of ds → so **Time T = 0 .**
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.b. → **k2** z = |zo|.e $^{- i. (5.π /2).10}$ = 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 Existent .
The relative Range is **Planck`s length .**
4.c. → **k3** z = |Λ|. e $^{- i. (π / 2) . 10}$ = 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 T = Constant .**
Cause is the **Very high Heat** causing vibration on molecules and ***is Quantized as*** → **Intensity = (** ***Pressure*** = Fd = C.x̄ = ± Co .w.[√ A² - x²] **)** i.e. ***Cause*** → (***Constant Co***) → ***Quantized as New monad*** and relative Range is **Infinity .**
i.e. ***The meter of Space-Energy changes (which is time = T) exists in k2 quantized region only .***

B.. Work and Energy .
Energy E is initially absorbed in [PNS] and in all quantized regions , either as momentum (mv) or as rotational momentum (**Λ =** r.mv) . Since velocity v = s/t = distance / time then for constant s , t v is also constant and t = T , the period of vibration and for a constant momentum **Λ** = λ2 m2v2 /2 = λ2.m2 (wλ2/4) = λ2²m2(πf/2 **) = πm**2.**λ2**²/2 (**f**) = **Co.f 2**, 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 region ET = [Λ∇ +Λ x ∇] = [Λ.M+ΛxM] = √ [m.vE.²]² + [Λ.vB +Λx vB]² = √[m.vE.²]² +S ² = h.f = h/T = h.v / λ , i.e. in every monad λ.mv/2 = h.f **= λ**Λ and Λ = h f / **λ** = Co.f where constant **Co** = **E/ f 2** a gauge magnitude depended on the angular velocity **w̄** , the velocity **v̄**, and then wavelength **λ** is conserved as momentum (mv̄) or angular momentum (Λ = r.mv̄ = m. wλ²/4) or both . Considering oscillatory motion as the simplest case of Energy dissipation then Work embodied in dipole *is **a** < **Spring-mass System with viscous dumping** >* with co variants ,energy **E** , mass **m** , velocity **v̄** = **v̄**E = x̄ wavelength **λ ,** and then Energy dissipation is the damping force equal Fd = C x̄ where C = a constant and x̄ the velocity . Following the steady-state of displacement and velocity then **,** x= A.sin(wt-θ) and x̄ = w.A.cos(wt-θ) where the energy dissipated per cycle is the executed work which is ,
Wd = Fd .dx = ∮C.x̄.dx = ∮C x̄ ².dt = πCwA² = (π/4)C.wλ² = (π²/2)C. f . λ² → ***The Energy dissipated per cycle* Wd** by the damping force **Fd** , is mapped by writing velocity **x̄** in the form x̄ = wA.cos(wt-θ) = ± wA.[√ 1 - sin²(wt-θ)] = ± w . [√ A² - x²] where then the dumping force Fd is Fd = C.x̄ = ± Cow.[√ A² - x²] and by rearranging [cos²(wt-θ) + sin²(wt-θ) = 1] then becomes , Fd ² / (Co.w.A)² + x² / A² = 1 *i.e. An Ellipse with* **Fd , x** *mapped along the vertical and horizontal axes respectively and the Energy dissipated per cycle is the given by the area enclosed by the ellipse.*

The total Energy $E = \lambda 2.\Lambda$ *which is embodied in monad* $A^{-}B$ *is moving as an Ellipsoid in the Configuration of co variants* ***λ , m , v = v̄***E **,** as ***Kinetic*** (*Energy of motion* ***Ω⁻***) and ***Potential*** (*Stored Energy in* ***λ , m , v***) ***energy*** *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 vector ($\Omega^{-} = \delta \bar{r}c$) = [v̄c + w̄.r̄ n].δt , as the Inertia ellipsoid [the Poinsot's ellipsoid of construction] in Absolute Frame which instantaneously rotates around vector axis w̃,θ with the constant polar distance w̄.Fd/|Fd| and the constant angles θs,θb, traced on, Reference (Body Frame) cone and on (Absolute Frame) cone , which are rolling around the common axis of w̄ vector , *without slipping* , and if Ω^{-} = Fe , is the Diagonal of the Energy Cuboid with dimensions a,b,c then *follow Pythagoras conservation law* , with the three magnitudes (J,E,B) of Energy-state following Cuboidal , Plane , or Linear Diagonal direction . [25-26].

C.. *The Fundamental Particles creation process .*

The article shows The Fundamental Particles creation process from equilibrium ± Λ *Momentum* ***on Common Circle*** *of Space , Anti-Space where* (+ Λ - Λ = 0 and opposite ± velocities ↻↺ collide) . Rotational energy (*Momentum* ± Λ) is entering gravity cave Lg = 2.r = e^i.(- 9.π/2)b = $3,969.10^{-62}$ where it is balancing on Common Circle . [F5-1]

1.. ***The rotated energy*** **[±** ***Momentum*** **→ ± Λ∇i = r.mv** = mr.(wr) = m(wr²/2)] ***Stabilizers at , Common Circle of*** **2r** ***diameter*** which is the Sub-Space of the two opposite Momentum Spaces and Momentum Anti-Spaces .

2.. ***At Common Circle*** , and because ***velocities*** on the circumference are of opposite direction + v̄ ↑ -v̄ ↓ , ***collide***.

3.. ***Collision of two vectors*** is equal to the Action of the two opposite quaternion **(** s + **v̄.**∇i).(©).**(** s + **v̄.**∇i) = s² - |v̄|² + [2w̄].|s| |r|.∇i = **[**r.w] ² - **[**|w̄**x**r̄|**]** ² + 2w̄.(s r)**.**∇i] which ***is composed of the three breakage quantities and are*** **(1)** → **[**r.w]², (**2**) → - **[**|w̄**x**r̄|]² = - [r.w]², (**3**) → 2w̄.(sr)**.**∇i = 2w.(wr..r) = 2.(wr)² all of Spinning nature (w), ½ , ½ , 1.

4.. The continually rotating ***velocity vector*** ± v̄ ***collides*** also ***with the three breakage quantities*** , *which are not more breakable , they do not decay*) ***giving them Thrust*** [The Action v̄ = w̄.r on quantities (1) , (2) , (3)] , ***and thus getting them off*** the Sub-space (***the common circle***) and Anti-Space (anti-circle) in a new Space , in cylinder Layer ***producing thus the* 6 *different constituents of the three different breakage qualities*** from Space , Anti-Space and Sub-Space (the common circle) ***qualities for each constituent* 6x3 = 18 *particles*** , **form** ***the* 6 *Massive particles*** [r.w]² → ***the Leptons and Quarks , the 6 Anti-massive particles* - [**|w̄**x**r̄|**]² = - [**r.w**]²** → ***the Anti - Leptons and Anti-Quarks ,*** the unsteady particles and others .

5.. The transport becomes through the ***Extreme triangles of Space Anti-Space*** [STPL mechanism] , a creative Valve (mould) ***Communicating Space Anti-Space Quantities*** (for all Dipole AB = [λ , ± Λ x∇] and all types of Energy) . On this mechanism , in Space are created massive and positive particles and in Anti-Space less massive and negative particles and anti-particles .

6.. Each of ***the three qualities*** , becoming from Space , Anti-Space and Sub-Space (on the common circle) **form** ***the*** **6** ***Massive particles*** from Space , [r.w]² ***the Leptons*** , - **[**|w̄**x**r̄|**]²** *the Anti-Leptons* , ***the 6 less massive particles ,*** from Anti-Space , [r.w]² ***the Quarks , -* [**|w̄**x**r̄|**]²** *the Anti-Quarks* , unsteady because of their constituents ***, the more energy breakage*** becoming from the intrinsic of breakage energy constituents , all with ½ spin **s** = h/2π = **[**r.w]² with mass and energy , *and because they are massive cannot occupy the same quantum state , and*

7.. ***The third quality*** 2.**[**(w̄ ² r²)**.**∇i**]** ***is of double spin*** S = 2.(1/2) = 1 = 2 .[r.w]² and is ***a vector directed to velocity vector*** , ***forming* 6 ,** the 3 massive Energy Colour particles 2.**[**(w̄²r²)**.**∇i**]** , ***Gluons-Red*** → **[gR]** , ***Gluons-Green*** → **[gG]** , ***Gluons-Blue*** → **[gB]** ***and another*** **3** Weak and Zero forces ***particles*** 2.**[**(w̄ ² r²)**.**∇i**]** **W ±** , **γ** ***Bosons , The three Colour Anti-Gluon*** → **[ḡR]** → **[ḡG]** →**[ḡB]** , and the 3 Anti-Weak and Zero forces ***particles*** **–W ±** = 0 = **γ** ***Bosons*** (specially permeable for Space , Anti-Space only) [32] .

2.1. Complex Numbers - Quaternion .

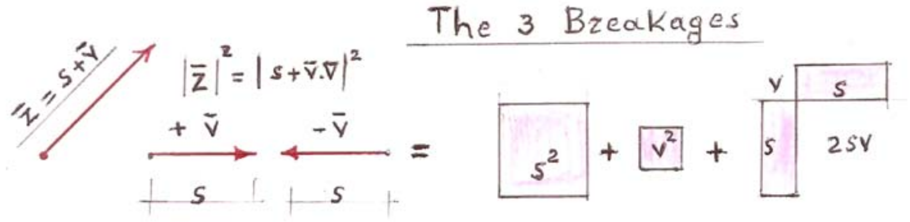
De Moivre´s formula for complex numbers states that the multiplication of any two complex numbers say z1,z2, or [z1= x1+i.y1 , z2= x2+i.y2] where x = Re[z] the real part and y = Im[z] the Imaginary part of ,z, is the multiplication of their moduli r1,r2 , where moduli ,r, is the magnitude [r = |r| = √x²+y²] and the addition of their angles ,φ1,φ2, where φ = arg.z = atan2(y,x) and so , z1.z2 = (x1+i.y1).(x2+i.y2) = r1.r2 [cos(φ1+φ2) + i.sin(φ1+φ2)] and when z1 = z2 = z and φ1=φ2=φ then z = x+iy and z.z = z² = r²(cos2φ+i.sin2φ) and for ,w, complex numbers $z^{w} = r^{w}$. [cos(wφ)+i.sin(wφ)] and so for r = 1 then → $z^{w} = 1^{w}$. $[\cos\varphi+i.\sin\varphi]^{w}$ = [cos.wφ+i.sin.wφ] .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, for r =1 , the first vertex of the polygon where φ=0 , is then [b=(cosφ+isinφ)]ⁿ = bⁿ = z = cos(nφ)+i.sin(nφ) = [cos(360/n) + i.sin(360/n)]ⁿ = cos360° + i.sin360° = 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 the points z = 1 as one of their vertices , are mapped as these regular polygons inscribed the unit circle . Since also $z^{w} = z^{-n}$ and $z^{-n} = z^{-1/w} = z^{+n}$ therefore complex numbers are even and odd functions , ***i.e. 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 **z̄ = [s ± v̄.i]** where **s,|v̄|** are real numbers and **i** the imaginary part such that i² = -1 . Extending imaginary part to three dimensions v1. i , v2.j , v3.k → **v̄** ∇i becomes quaternion which has 1 + 3 = 4 degrees of freedom .

De Moivre´s formula for the nth roots of a quaternion , where q = k.[cos.φ+ [∇i].sin.φ] is for w = 1/n ,
$q^w = k^w$.[cos.wφ + ε.sin.wφ] where q = z = ± (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 = Tz = Tensor (the length) of vector ,z, in Euclidean coordinates which is k = Tz = $\sqrt{x^2+y1^2+y2^2+yn^2}$, and for imaginary unit vector ã (a1,a2,a3,a.n...w),
the unit vector **ε** of imaginary part is→ **ε** = (y.i/Ty) = [y.∇ i]/[Ty] = ±(y1.a1+y2.a2+) / ($\sqrt{+y1^2+y2^2+yn^2}$) the rotation angle 0 < = φ < 2π , φ = ± $\sin^{-1}$ (Ty/Tz) , cosφ = x/Tz , which follow Pythagoras theorem for them and for all their reciprocal quaternions ã' (ã.ã' = 1) . Since also the directional derivative of the scalar field
y(y1 , y2 , yn ...) in the direction **,i,** is→ i (y1 , y2 , yn .) = i1.y1+ i2.y2 .+ i n .yn and defined as i.grad y = i1.(∂y/∂1) + i2.(∂y/∂2) +…. = [i.∇].y , which gives the change of field **,y**, in the direction → i , and [i.∇] is the single coherent unit , so coexistance between Spaces Antispaces and Sub-Spaces of any monad z̄ = x+y.i = ĀB and is happening through general equation which follows → m^±(ª + ª.∇i) = $q^w = (Tq)^w$. [cos.wφ + **ε**.sin.wφ] where ,

m = $\lim(1+1/w)^w$ for w = 1→ ∞ , q = z = ± (x+y.i)
sinφ = y/$\sqrt{x^2+y^2}$, cosφ = x/$\sqrt{x^2+y^2}$, |z| = $\sqrt{x^2+y^2}$,
Tq = $\sqrt{x^2+y1^2+y2^2+\ldots yn^2}$, Ty = $\sqrt{y1^2+y2^2+\ldots yn^2}$
ε = (ȳ.i/Ty) = [ȳ.∇i] / [Ty] = (y1.a1+y2.a2+...) / ($\sqrt{y1^2+y2^2+\ldots yn^2}$)

2.2. ***Quaternion Actions*** **:** Action (©) of a quaternion **z̄** = s + v̄.i **=** s + **v̄.**∇i on point **P**(a,x,y,z) is **za = z̄pz̄**$^{-1}$ (*screw motion*) and for a ≠ 0 then z and a © z = az which have the same action z̄pz̄$^{-1}$, meaning that quaternion is homogeneous in nature . Action of a Unit quaternion on a scalar **s** is **z̄ = z̄sz̄**$^{-1}$ = **sz̄z̄**$^{-1}$ = **s**
Action of a Unit quaternion **z̄** on a vector (**v̄**∇i) is **z̄vz̄**$^{-1}$, i.e another vector **v̄ '** (quaternion) v̄ '= (0,**v̄**'∇i) , and of vector type **v̄ '.**∇i = **z̄** + 2v̄ **(v̄** x **z̄) + 2v̄** x **(v̄** x **z̄) .**
When the components of a vector **w̄** (wx i+wy j+wz k) are expressed in terms of the three Euler angles ε,φ,θ then is as quaternion z(zo+zx i+zy j+zz k) , where zo = cos(ε+θ) / 2**.**cos(φ/2) , zx = - cos(θ-ε) / 2**.**sin(φ/2) , zy = sin(θ-ε) / 2**.**sin(φ/2) , zz = - sin(ε+θ) / 2**.**cos(φ/2) , and the time derivative as [dz/dt] = (**z** / 2) **x** w .
Action of a Unit quaternion on a point **p** (a,x,y,z) is **p' = z̄pz̄**$^{-1}$, i.e. another point [takes the point P(s, v̄1∇i) to the point P' (s, v̄2∇i)] and if the point is on the unit axes , then the unit quaternion is representing rotation through an angle **θ** about the unit axis **v** and it is **p' =** (p ± sin(θ/2)**v**) .
Action (©) of a quaternion **z̄** = s + v̄.i **=** s + **v̄.**∇i on itself is the Binomial type i.e. **(** s + **v̄.**∇i)(©)**(** s + **v̄.**∇i) = **[**s + **v̄.**∇i]² = s² + |**v̄**| **² .**∇i ² + 2|s|.|v̄|.∇i = s² - |**v̄**| **²** + 2|s|.|w̄r|**.**∇i = s² - |**v̄**| **²** + [2w̄].|s| |r|**.**∇i where ,

s² → is the real part of the new quaternion and ***a Positive Scalar magnitude*** .
- |**v̄**| **²** → the always negative Anti-space which is always ***a Negative Scalar magnitude*** .
[2w̄].|s| |r̄|**.**∇i → the double angular velocity term which is ***a Vector magnitude .***



The Action of quaternion z̄.z̄ = [s + **v̄.**∇i]² = s² **-** |**v̄**| **²** + [2w̄].|s| |r|**.**∇i …… F.(2-1)
***The three breakages of velocity* ū , - ū** = **[**r.w]² - **[**r.w]² + 2 .**[**r.w] ²

2.3. Example :
It has been shown in [26] example **2** that ,
When vector **w̄** (wx i+wy j+wz k) is the angular velocity vector only , in the absence of applied torques , **L** (Lx i+Ly j+Lz k) = I.w = r̄**x**mv̄ = r̄p , is the angular momentum vector (*where r =lever arm distance and m.v̄ = p , the linear or translation momentum*) and I = (I1,I2,I3) are the Principal moments of Inertia then angular kinetic energy **E** = ½**. w L** = ½. I1.w1 ² + ½. I2.w2 ² + ½. I3.w3 ² .
Since both L and E are conserved as L² = L1 ² + L2 ² + L3 ² and E = L1² /2J1 + L2² /2J2 + L3² /2J3 and by division becomes 1 = [L1² /2TJ1] + [L2² /2TJ2] + [L3² /2TJ3] , [***the Poinsot's ellipsoid construction***] and when L² / 2EJ = r²p² /2E.2E/(w ²) = w². r²**x**p²/ (4T²) = w ² / [2E/ r̄**x**p]² , then this is a Kinetic-Energy Inertial ellipsoid dependent on the total kinetic energy E , and the translational momentum , p , with axes
a = [2E/ r̄**x**p1] , **b** = [2E/ r̄**x**p2] , **c** = [2E/ r̄**x**p3] . (*Ellipsoid* $x^2/a^2+y^2/b^2+z^2/c^2 = 1$ *and when* $a^2 = b^2 = c^2 = r^2$ *the circle* $x^2 + y^2 + z^2 = r^2$) , and resultant E = $\sqrt{a^2 + b^2 + c^2}$.
Considering L²/2J = J.J.w²/2.J = Jw²/2 = r̄.p.w/2 then E = |√ r1p1w1 |² + |√ r2p2w2 |² + |√ r3p3w3 |² or √E² =√ a²+b²+c ²) , i.e. a cuboid (**a**x**b**x**c**) , rectangular parallelepiped ,with dimensions a = |√ r1p1w1 | , b = |√ r2p2w2 | , c = |√ r3p3w3 | and the length of the space diagonal (resultant) E = √ a²+b²+c ² .

Because the ***position velocity*** of a quaternion $\bar{z} = s+\bar{v}\nabla i$ is $[d\check{z}/ds] = (d\check{z}/ds ,0)(s + \bar{v}.\nabla i) = (1+dv/ds.\ \nabla\bar{\imath}^{\ 1})$ and ***acceleration*** $[d^2z/ds^2] = (d/ds ,0)(1+d\bar{v}/ds.\ \nabla\bar{\imath}^{\ 1}) = (0, d^2\bar{v}/ds^2.\nabla i)$ and in Polar plane coordinates where angular momentum $L = Iw = \bar{r}\mathbf{x}m\bar{v} = \bar{r}p$, then
acceleration $[d^2\bar{z}/ds^2] = (d\bar{z}/ds,0)^2 (s , r\cos\theta, r\sin\theta, 0) = (0, L^2/m^2r^3 + r , 2Ldr/ds / mr^2 , 0)$ where ,

$L^2/m^2r^3 + r$ = the acceleration in the $(\bar{\mathbf{r}})$ radial direction ,
$2Ldr/ds / mr^2$ = the acceleration in $\boldsymbol{\theta}$ direction .
Since Points are nothing and may be anywhere in motionless space , so Position quaternion is referred to this space only , *and generally the velocity and acceleration in a non-Inertial , rotating reference frame is as ,*

Velocity $\rightarrow$ **[dž/dt] = (d/dt , ϖ) (0 ,ž) = (- ϖ.ž , ϖ x ž + dž /dt)** and
Acceleration $\rightarrow$ **[d²ž/dt²]** = (d/dt , ϖ) (- ϖ.ž , dž /dt + ϖ x ž) =
= (- dϖ/dt .ž , d²ž /dt²+2 ϖ x **dž /dt + dϖ/dt** x **ž – ϖ.žϖ)** where

→ - dϖ/dt .ž = the intrinsic acceleration of quaternion ,
→ d²ž /dt² = the translational alterations (they are in the special case of rotational motion where rotation on two or more axes creates linear acceleration in , *one only different rotational axis J*) ,
→ 2 ϖ x dž /dt + dϖ/dt x ž = the coriolis acceleration , a centripetal acceleration is that of a force by which bodies (*of the reference frames* [RF]) are drawn or impelled towards a point or to a center (*the known hypothetical motionless non-rotational frame* [AF]) ,
→ – ϖ.žϖ) = - ϖx(ϖxž) + ϖ²ž = the azimuthal acceleration which appears in a non-uniform rotating reference frame in which there is variation in the angular velocity of the reference point .
Time **t** does not interfere with the calculations in the motionless frame .

i.e. ***The conjugation operation* (*The Action of* ž *on* ū) *is a constant rotational Kinetic–energy*** (**E**)**,** ***which is mapped out*** *,by the nib of vector* **ϖ *, as the Inertia ellipsoid in space which instantaneously rotates around*** *vector axis* ϖ ***(the composition of all rotations) with the constant polar distance*** ϖ.L/|L**|** ***and the constant angles*** *θs* **,** *θb, traced* ***on Space cone and on Body cone which are rolling around the common axis of*** *ϖ vector.*
and if the three components of E are on a cuboid with dimensions a,b,c then (Action of ž on any ū) corresponds to the composition of all rotations only , by the rotation of unit vector axis *ū(0,u)* ***, by keeping a unit cuboid held fixed at one point of it , and rotating it ,θ, about the long diagonal of unit cuboid through the fixed point (*** *the directional axis of the cuboid on ū).*

Applying the fundamental equations on two points of stationary [PNS] , zo = [λ ,±Λ∇i] , z̄'o = [λ²- |Λ|²] , eo = [-λ∇,∇xΛ] = 0 then → e = ∇xΛ = ∇©Λ= **[-divΛ̄,curl Λ̄] = [0 , ± Λ]** i.e. ***the points are incorporating the equilibrium vorticity* ±*Λ either as even or odd functions*** . Since z̄o = [λ , ±Λ∇i] , then positive z̄o z̄o = [λ , Λ∇i] and z̄'o = [λ ,-Λ∇i] is the conjugate quaternion and because z̄o is a unit quaternion then

Action on point is → A = New quaternion **z** = z̄o© ō = z̄o **.** ō . z̄'o = [λ , Λ∇i].[0 , Λ∇i] .[λ ,-Λ∇i] =
= [-Λ², λΛ + ΛxΛ].[λ ,- Λ] = **[** 0 , (λ²-Λ²).Λ + 2Λ(ΛΛ) + 2λ(Λ**x**Λ) **]** .
Since divΛ = 0 = |Λ |.divΛ̄ +Λ̄. ∇|Λ| = |Λ |.divΛ̄ +Λ̄. d|Λ|/ds then Λ̄.∇ = d/ds , which is the arc-length derivative of Λ direction showing that ***on points exists directional vorticity as*** ,

(λ²-Λ²).Λ	=	Euler	vorticity	↺	*Positive Scalar magnitude*
2 Λ(ΛΛ)	=	Coriolis	vorticity	↻	*Negative Scalar magnitude*
2λ.(Λ**x**Λ)	=	Centripetal	vorticity	↻↺	*Vector magnitude* and for v̄ ⊥ Λ then

z = **[** 0 , Λ.cosθ + (v̄xΛ).sinθ **]** which is the *Euler-Rodrigues* formula for the rotation by an angle θ , of the vector Λ about its unit normal **v̄ .** Conjugation of **ō** on point **P** is G = →
[0, Λ] © [r + r̄.i **]** = **- |Λ|.|r̄| ,** r**Λ + Λxr̄** and for Λ ⊥ r̄ which is velocity **v̄** then **G = [0 , v. Λ̄ + Λ**x**v̄]**
and the normalized quaternion is G ' = [-|Λ|.|v̄| , vΛ +Λxv̄] / (Λv √3) , ***which is Gravity as said of Spaces ,***
i.e. ***A Potentially Rotational kinetic energy* (mr.w²) *as above without invoking laws of mechanics .***

It was shown , that into Gravity cave Lg = 2.r = e^i.(- 9.π/2)b = 3,969.10⁻ ⁶² m , is inversely balancing the ***Common Circle of Space Anti-Space ,*** with Velocities (v̄g = w̄r) that of light ,c, tending to zero .
For rotations in caves Lc > Lg then exist Velocities (v̄c = w̄r) > than that of light ,c, [v̄c > c] tending to ∞.
The hidden pattern of universe is ***,STPL- line****,* ***which is off the Spaces and connect them*** (*maintain , conserve , and support all universe*) , ***so , it is the Navel string of galaxies.***

3.. Extremum Principle or Extrema :
All Principles are holding on any Point A .
For two points A , B not coinciding , exists Principle of Inequality which consists another quality .
Any two Points exist in their Position under one Principle , *Equality and Stability* ,
In Virtual displacement which presupposes Work in a Restrain System . [12]
This Equilibrium presupposes homogenous Space and Symmetrical Anti-Space .
For two points A , B which coincide , exists *Principle of Superposition* which is a Steady State containing Extrema for each point separately .
Extrema , for a *point A* is the Point , for a *straight line* the infinite points on line , either these coincide or not or these are in infinite , and for *a Plane* the infinite lines and points with all combinations and Symmetrical ones which are all monads **,** ***i.e.***
all Properties of Euclidean geometry , compactly exist in Extrema Points , Lines , Planes , circles .
Since Extrema is holding on Points , lines , Surfaces etc , therefore all their compact Properties (Principles of Equality , Arithmetic and Scalar , Geometric and Vectors , Proportionality , Qualitative , Quantities , Inequality , Perspectivity etc) , exist in a common context as different monads .
Since a quantity (a monad AB) is either a vector or a scalar and by their distinct definitions are ,
Scalars **-----** [**s**] , are quantities that are fully described by a magnitude (or numerical value) alone ,
Vectors **---- [** $\bar{v}.\nabla$ **] ,** are quantities that are fully described by both magnitude and a direction ,
Q***uaternion*** [$\mathbf{d\hat{s}}$ = $\mathbf{s}+\bar{v}.\nabla i$] is a vector with two components , ***the one*** **s** ,is the only space with Scalar Potential (any field $\mathbf{\Phi o}$) , which is only half lengths of Space Anti-Space , (*the longitudinal positions*) , (x) → (-x) straight line connecting Space [S] , Anti-Space [AS] in [PNS] and in it exist , *the initial Work , Impulse , bounded on points which cannot be created or destroyed which is analogous to the (x) magnitude ,* ***and the other one*** **y** (is the infinite local curl fields **So**) due to the Spin which is the intrinsic rotation of the Space and Anti-Space , therefore exists a common Extrema formulation for all monads .
In [17-22] , ***The six , triple lines , points*** was shown that

Extrema of Space is Anti-space (Quaternion $\bar{z}'o = [\lambda, \Lambda\nabla i]^{n}$) ,
Extrema of Plane is Anti-Plane (Quaternion $\bar{z}'o = [\lambda, \Lambda\nabla i]^{n-1}$) ,
Extrema of Line is Anti-Line → $0 \pm \infty$ (Quaternion $\bar{z}'o = [\lambda, \Lambda\nabla i]^{n-2}$)

i.e. a new Monad AB = [s + $\bar{v}.\nabla i$] with ,s, as the real part and $\bar{v}.\nabla i$ again as the Imaginary part.
The nature of geometry is such (*circular reference)* that through this intrinsic mechanism to transform Quaternion $\mathbf{\bar{z}o}$ to a different quaternion $\mathbf{\tilde{\bar{z}}`o}$, as is the causality dilemma of < *the chicken or the egg* > .

Balancing of Space , Anti-Space is obtained by the Biaxial Ellipsoid ($\boldsymbol{\sigma}x = \boldsymbol{\sigma}y$) which exists as momentum $\pm\Lambda$ in caves of diameter 2r . Recovery body (Stabilizer) of the two opposite magnitudes equilibrium the two Momentums by the collision of the two opposite ,***Velocity Monads*** $\pm\tilde{\mathbf{v}}$, due to momentum $\pm\Lambda\nabla i$. [25-26].

4.1. The Six , Triple points , Line .

It was proved as a theorem [16] that on any triangle ABC and on circum circle exists one inscribed triangle $A_EB_EC_E$ and another one circumscribed Extremes triangle $K_AK_BK_C$ such that the **Six** points of intersection of the six pairs of **triple lines** are collinear → (3+3) . 3 = 18 lines (F-2)
In Projective geometry , Space points are placed in Plane and in Perspective theory < Points at Infinity > and so thus are extremes points [17] . Extremes points follow Euclidean axioms and it is another way of mapping and not a new geometry contradicting the Euclidean .
It was also shown that Projective geometry is an Extrema in Euclidean geometry and [STPL] their boundaries .
In case of Orthogonal system (angle A = 90°) then the inscribed triangle $A_EB_EC_E$ is in circle and the Extrema triangle $K_AK_BK_C$ has the two sides perpendicular to diameter BC and the third vertice in ∞ so any non orthogonal transformational system on an constant **vector** $\bar{\mathbf{A}}\,\mathbf{B}$, which is the orthogonal system , is happening on the supplementary of θ angle i.e. (90-θ) where then on AB exists → cscθ = constant and equal to $\pm[1/\sqrt{1-\cos^2(90-\theta)}] = \pm[1/\sqrt{1-(BA/BD_B)^2}]$ which is identified for say AB = $\tilde{v}$ to Lorentz factor
$\gamma = \pm[1/\sqrt{1-\beta^2}]$ where $\beta = v/c$, i.e $\csc\theta$ = constant = $\pm[1/\sqrt{1-(BA/BD_B)^2}]$, and it is the geometrical interpretation of Projective geometry as an Extrema in Euclidean geometry .
In Projective geometry , Space points are placed in Plane and in Perspective theory < *Points at Infinity* > and so thus are extrema points[17] . Extrema points follow Euclidean axioms either by translation geometry [s,0] or by rotation [0,$\bar{v}.\nabla i$] or both [s,$\bar{v}.\nabla i$] , where s = scalar and $\bar{v}.\nabla i$ = vector .The Projective sphere comprehending great circles of the sphere as < *lines* > and pairs of antipodal points as <*points*> does not follow the Euclidean

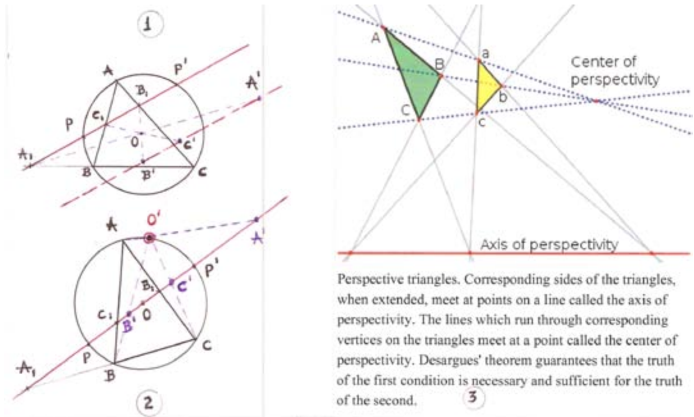
Axioms 1- 4 , because < *points at Infinity* > must follow 1-4 , which do not accept lines , planes , spaces at infinity . The same also for Hyperbolic geometry with omega point , so ???

Since Natural logarithm of any complex number b, can be defined by any natural and real number as the power ,**w**, which represent the mapping to which a constant say e, would have to be raised to equal b , i.e. e^{W}= b and or e^ln(b) = e , [base e]^ ^{1} *natural number* w^1 = b , therefore , represent mapping which is the regular polygonal exponentiation of unit complex monad ĀB = 1 on base ,e, of natural logarithms .

Using the generally valued equation of universe for zero work W = ds.©∫Ā -B [P.ds] = 0 , [20] for primary Space and anti-Space on monad ĀB with the only two quantized quantities dš = |ĀB| and P = v̄.∇i, then work is the action of the consecutive small displacements (shifts) along the unit circle caused by the application of infinitensimal rotations of AB = 1 starting at 1 and continuing through the total length of the arc connecting 1 and -1 , in complex plane .

4.2. Perspectivity :

In Projective geometry , (*Desargues` theorem*) , two triangles are in perspective *axially* , if and only if they are in perspective *centrally* . Show that , Projective geometry is an **Extrema** in Euclidean geometry .



F (4-2,1) F (4-2,2) F (4-2,3)

Two points P , P′ on circum circle of triangle ABC , form **Extrema** on line PP′ . Symmetrical axis for the two points is the mid-perpendicular of PP′ which passes through the centre O of the circle *therefore* Properties of axis PP′ are transferred on the Symmetrical axis in rapport with the center O (central symmetry) , *i.e.* the *three points of intersection A1 ,B1 ,C1 are Symmetrically placed as A′ , B′ , C′ on this Parallel axis* . F(4-1) .

a. In case points P , P′ are on **any diameter** of the circum circle F(4-2) , then line PP′ coincides with the parallel axis , the points A′ , B′ , C′ are Symmetric in rapport with center O , and *the Perspective lines AA′ , BB′ , CC′ are concurrent in a point O′ situated on the circle .*

When a pair of lines of the two triangles (ABC , abc) are parallel F(4-3) , *where the point of intersection recedes to infinity ,axis PP′ passes through the circum centers of the two triangles* , (*Maxima*) *and is not needed “* ***to complete*** *“ the Euclidean plane to a projective plane .i.e.*

Perspective lines of two Symmetric triangles in a circle , on the diameters and through the vertices of corresponding triangles , concurrent in a point on the circle .

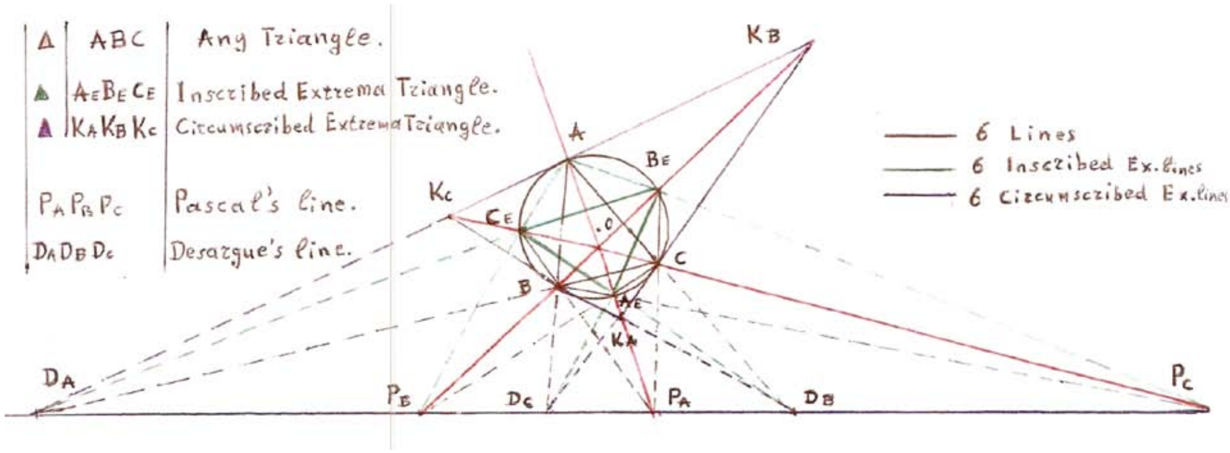
b. *When all pairs of lines of two triangles are parallel* , equal triangles *, then points of intersection recede to infinity , and axis PP` passes through the circum centers of the two triangles* (*Extremes*).

c. *When second triangle is a point* ***P*** *then axis PP′ passes through the circum center of triangle .*

Now is shown that *Perspectivity* exists between a triangle ABC , a line PP′ and any point P where then exists Extrema , i.e. ***Perspectivity in a Plane is transferred on line and from line to Point***
This is the compact logic in Euclidean geometry which holds in Extreme Points .

Any Segment AB between two points A , B consist a Vector described by the magnitude AB and directions ÃB , BÃ and in case of Superposition ÃA , AÃ . i.e. Properties of Vectors , Proportionality , Symmetry , etc exists either on edges A , B or on segment AB as follows :

Theorem : On any triangle **ABC** and the circumcircle ***exists*** one inscribed triangle **AEBECE** and another one circumscribed **Extrema triangle KAKBKC** such that the **Six** points of *intersection of the six pairs of* ***triple lines*** *are collinear* → (3+3) . 3 = 18



The Six Triple Points Line → ***The Six , Triple Concurrency Points , Line*** → [STPL] .. F(4-2)

It has been proved [16] that since Perspective lines , on Extremes Triangles $A_EB_EC_E$, $K_AK_BK_C$ concurrent , and since also Vertices A , B , C of triangle ABC lie on sides of triangle K_A,K_B,K_C , therefore all corresponding lines of the three triangles , when extended concurrent , and so the three triangles are Perspective between them i.e.

This compact logic of the nine points [A , B , C] , [A_E , B_E , C_E] , [K_A , K_B , K_C] ***of the inscribed circle*** (O , ABC) ***when is applied on the three lines*** K_AK_B , K_AK_C , K_BK_C , ***THEN THE SIX pairs of the corresponding lines which extended are concurrent at points*** P_A , P_B , P_C ***for the Triple pairs of lines*** **[** 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 other Triple pairs of lines*** **[** CB , K_BA , B_EC_E **] , [** AC , K_AB , C_EA_E **] , [** BA , K_BC , A_EB_E **]** ***and lie on a straight line , and in case of points*** *A ,B ,C* ***being on a sphere then*** [STPL] ***becomes a cylinder.***

Conclusion :

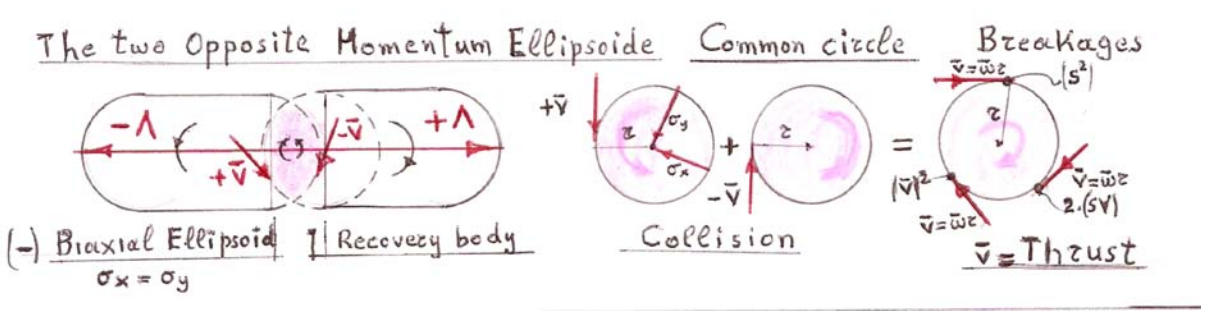
1.. [STPL] is a ***Geometrical Mechanism*** that produces all Spaces , Anti-Spaces in the Common Sub-Space.

2.. Points A,B,C and lines AB,AC,BC of ***Space , communicate with*** the corresponding A_E ,B_E ,C_E and A_EB_E, A_EC_E,B_EC_E of ***Anti-Space*** , separately or together with bands of three lines at points P_A,P_B,P_C , and with bands of four lines at points D_A,D_B,D_C ***on common circumscribed circle*** (O,OA) ***Sub-Space***.

3.. If any monad AB (*quaternion*) , [s, v̄.∇i] , *all or parts of it* , somewhere exists at points A ,B ,C or at segments AB ,AC ,BC then [STPL] line or lines ,is the Geometrical expression of the Action of External triangle $K_AK_BK_C$, *the tangents* , on the two Extreme triangles ABC and $A_EB_EC_E$ (*of Space Anti-space*).

5. The method :

THE BALANCING OF SPACE → ANTI-SPACE .



↺↻ ↻↺ → ↺↺

Equilibrium vorticity ±Λ (Rotating energy) **, Collision** on common circle **, Thrust** on Breakages F.(5-1)

The work W, for the infinite points on the two tangential to **n** planes is equal to 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 $\tilde{L}$ and it is a vector) .

Momentum ± Λ = r.m.v = rm.wr = mr².w , where **w** is the angular velocity (spin) which maps velocity vector **v̄** on the perpendicular to ± Λ plane with the two components **v̄** $_E$ ⊥ **v̄** $_B$. Tangential velocity **v̄** $_E$ = wr is a quaternion **v̄** $_E$ = w.r = **z̄** = **[** s + **v̄.**∇i] where s = | **v̄** $_E$ | = |r.w| and **v̄.**∇i = |w̄xr̄| .

In a spherical cave the Biaxial Ellipsoid ($\sigma x = \sigma y$) exists as momentum + Λ on caves of diameter 2r with parallel circles $\rightarrow 0$ .The Biaxial Anti-Ellipsoid ($-\sigma x = -\sigma y$) exists as equal and opposite momentum - Λ on the same diameter 2r with anti - parallel circles $\rightarrow 0$. Equilibrium of the two Ellipsoids $\pm \Lambda$, presupposes a Stabilizer system attached to Ellipsoids such that opposite Momentum is distributed to the ***Center of Mass*** of the total system and , *recover equilibrium* , which is the center of the spherical cave .

The Biaxial Ellipsoid and Anti-Ellipsoid are inversely directed and rotated in the same circle , so the two velocity vectors collide . This collision of the two opposite velocity vectors is the Action (***Thrust***) of the two quaternion and it is ,

Action of quaternions $(s + \bar{\mathbf{v}}.\nabla i)(©)(s + \bar{\mathbf{v}}.\nabla i) = [s + \bar{\mathbf{v}}.\nabla i]^2 = s^2 + |\bar{\mathbf{v}}|^2 .\nabla i^2 + 2|s|.|\bar{v}|.\nabla i = s^2 - |\bar{\mathbf{v}}|^2 + 2|s|.|\bar{w}r|.\nabla i$

$= \quad s^2 - |\bar{\mathbf{v}}|^2 + [2\bar{w}].|s|\,|r|.\nabla i$ *where* ,

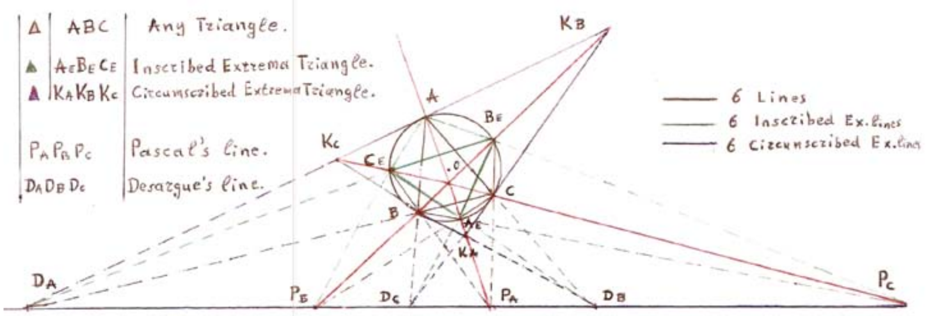
$\mathbf{s}^2 = (r.w)^2 \quad \rightarrow$ is the real part of the new quaternion ,

$-|\bar{\mathbf{v}}|^2 = |\tilde{w}\mathbf{x}\tilde{r}|^2 = -(r.w)^2 \quad \rightarrow$ the always negative Anti-space (a vector $\perp$ to w,r plane),

$[2\bar{w}].|s|.|\bar{r}.\nabla i = 2w.(sr).\nabla i \quad \rightarrow$ the double angular velocity term .

i.e. *In the recovery equilibrium* (maybe a surface cylinder with 2r diameter) **,** *and because velocity vector is on the circumference* **,** the infinite breakages (*the only row material*) identify with points A ,B ,C (*of the extreme triangles* ABC *of Space* ABC) and with points A_E, B_E, C_E (*of the extreme triangles* $A_EB_EC_E$ of *Anti-Space*) all , on the same circumference of the prior formulation and are rotated with the same angular velocity vector $\bar{\mathbf{w}}$. The inversely directionally rotated Energy $\pm \mathbf{\Lambda}$ equilibrium into the common circle , so Spaces and Anti-Spaces meet in this circle giving ,Thrust , to the breakages of each other .

Extreme Spaces (*the Extreme triangles* ABC) meet Anti-Spaces (*the Extreme triangles* $A_EB_EC_E$) through the only Gateway which is the , ***Plane Geometrical Formulation Mechanism of the [STPL] line*** .



F.[5-2]

Index : $D_A \rightarrow P_A$ = x axis , A $\perp$ ($D_A \rightarrow P_A$) = y axis , Positive vorticity ↺ + ↑ , Negative vorticity ↻ - ↓

Thrust ($\bar{v} = \bar{w}.r$) on Breakages [s^2, $-|\bar{\mathbf{v}}|^2$, $[2\bar{w}].|s|\,|r| = 2(\bar{w}.r)^2$] produces $\bar{w}^3.|\bar{r}|^3$. [1-1 +2] magnitudes **(w.r)** ^{3} , *is a Positive Scalar magnitude* , with Positive or zero electric charge and spin ½ and for ,

Breakage $(w.r)^2$, *is a Positive Scalar magnitude* with Positive or zero electric charge and spin ½ ,

1.. Breakage $(w.r)^2$ being on Points A , A_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_A , P_A forming *Leptons* $\rightarrow$ $\mathbf{v_e}$, **e** and *Quarks* $\rightarrow$ **u , d**

2.. Breakage $(w.r)^2$ being on Points B , B_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_B , P_B forming *Leptons* $\rightarrow$ $\mathbf{v_\mu}$, $\boldsymbol{\mu}$ and *Quarks* $\rightarrow$ **c , s**

3.. Breakage $(w.r)^2$ being on Points C , C_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_C , P_C forming *Leptons* $\rightarrow$ $\mathbf{v_\tau}$, $\boldsymbol{\tau}$ and *Quarks* $\rightarrow$ **t , b**

Breakage $-|\bar{w}\mathbf{x}\bar{r}|^2 = \mathbf{-(w.r)^2}$, *is a Negative Scalar magnitude* with Negative or zero electric charge and spin ½ ,

1.. Breakage $-(w.r)^2$ being on Points A , A_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_A , P_A forming *Anti-Leptons* $\rightarrow$ $\bar{\mathbf{v}}_\mathbf{e}$, $\bar{\mathbf{e}}$ and *Anti-Quarks* $\rightarrow \bar{\mathbf{u}}$, $\bar{\mathbf{d}}$

2.. Breakage $(w.r)^2$ being on Points B , B_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_B , P_B forming *Anti-Leptons* $\rightarrow$ $\bar{\mathbf{v}}_{\boldsymbol{\mu}}$, $\bar{\boldsymbol{\mu}}$ and *Anti-Quarks* $\rightarrow$ $\bar{\mathbf{c}}$, $\bar{\mathbf{s}}$

3.. Breakage $(w.r)^2$ being on Points C , C_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_C , P_C forming *Anti-Leptons* $\rightarrow$ $\bar{\mathbf{v}}_{\boldsymbol{\tau}}$, $\bar{\boldsymbol{\tau}}$ and *Anti-Quarks* $\rightarrow$ $\bar{\mathbf{t}}$, $\bar{\mathbf{b}}$

Breakage $\mathbf{2(\bar{w}r)^2}$ **,** *is a Vector magnitude* with Positive or Zero or Negative electric charge , spin (2w) = 1,

1.. Breakage $2|sr|.\bar{w}$ **,** being on Points A , A_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_A , P_A forming $\rightarrow$ Gluons **g** ,W^+ Bosons the $\mathbf{W}^+$ particle and the $\mathbf{W}^-$, $\bar{\mathbf{g}}_\mathbf{R}$, Anti particles.

2.. Breakage $2|sr|.\bar{w}$ **,** being on Points B ,B_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_B , P_B forming $\rightarrow$ Gluons **g** , Z^+ Bosons the $\mathbf{Z}^+$ particle and the $\mathbf{Z}^-$, $\bar{\mathbf{g}}_\mathbf{G}$, Anti particles.

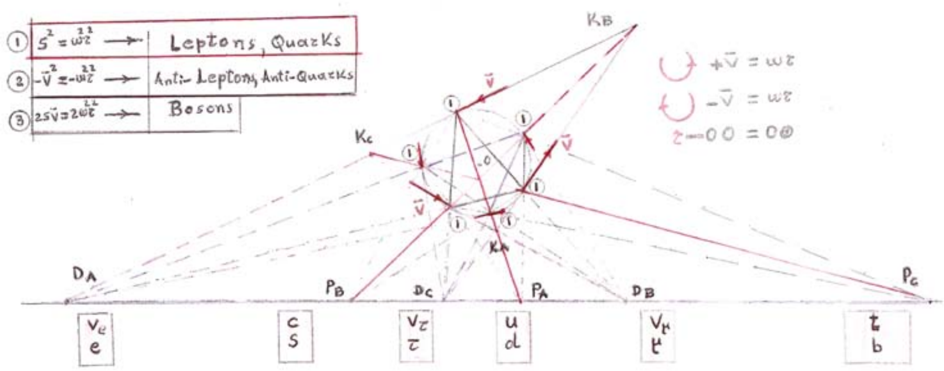
3.. Breakage $2|sr|.\bar{w}$ **,** being on Points C , C_E, collide with vector $\bar{v} = \bar{w}r$ and then are getting off the common circle at point D_C , P_C forming → Gluons **g ,** H^+ Bosons the $\mathbf{H^+}$ particle and the $\mathbf{H^-}$, $\bar{\mathbf{g}}_\mathbf{B}$, Anti particles.

4.. Breakage $2(\bar{w}r)^2$ 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 $\bar{\gamma}$ **,** $\bar{\mathbf{G}}$**,** $\bar{\mathbf{M}}$ Anti particles ,

$Q'P_A = |\,B,C_E,P_A\,|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).\ [-\cos(BC_E,P_A)\,] \quad \rightarrow \quad \gamma$
$Q'P_A = |\,C,B_E,P_A\,|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).\ [-\cos(CB_E,P_A)\,] \quad \rightarrow \quad \bar{\gamma}$

$Q'P_B = |\,C,A_E,P_B\,|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).\ [\cos(AC_E,P_B)\,] \quad \rightarrow \quad \mathbf{G}$
$Q'P_B = |\,A,C_E,P_B\,|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).\ [\cos(CA_E,P_B)\,] \quad \rightarrow \quad \mathbf{G^-}$

$Q'P_C = |\,A,B_E,P_C\,|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).\ [-\cos(AB_E,P_C)\,] \quad \rightarrow \quad \mathbf{M}$
$Q'P_C = |\,B,A_E,P_C\,|.2|wr|^2 = |r.w|.2.(r^2.w^2) = 2.(r^3.w^3).\ [-\cos(BA_E,P_C)\,] \quad \rightarrow \quad \mathbf{M^-}$



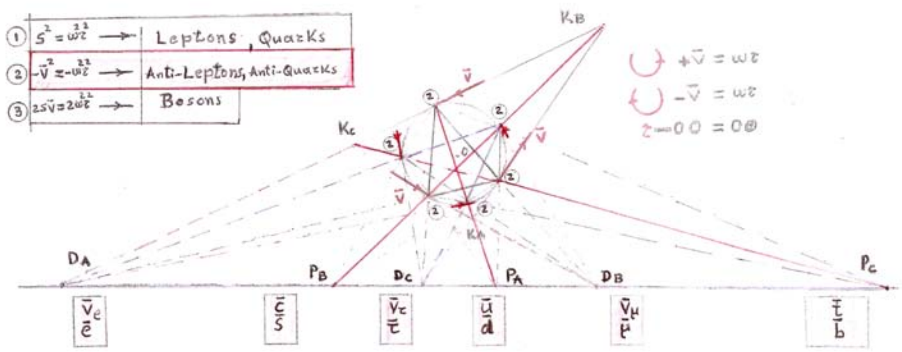
The* [STPL] *line* → *producing Leptons and Quarks F[5-2.1]

1.. ***Positive breakage Quantity*** $\mathbf{s^2 = (r.w)^2}$ → Being at Space points A,B,C and of v = wr then Action magnitudes Q at coinsiding points D_A,D_B,D_C - P_A,P_B,P_C produces ***Leptons*** and ***Quarks*** with spin ½ , and carry them on [STPL] line .

$\mathbf{QD_A} = |\,A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [\cos(A,D_A) + \cos(B,D_A) + \cos(C,D_A)\,] \quad \rightarrow \ \boldsymbol{\nu_e}$
$s^2 = (r.w)^2$ → 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
$\mathbf{QD_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [\cos(A_E,D_A) + \cos(B_E,D_A + \cos(C_E,D_A)] \quad \rightarrow \ \mathbf{e}$
$s^2 = (r.w)^2$ → 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
$\mathbf{Q'P_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [-\cos(A,P_A) - \cos(B,P_A) + \cos(C\,,P_A)\,] \quad \rightarrow \ \mathbf{u}$
$\mathbf{Q'P_A} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [-\cos(A_E,P_A) + \cos(B_E,P_A - \cos(C_E,P_A)] \quad \rightarrow \ \mathbf{d}$

$\mathbf{QD_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [-\cos(A,D_B) - \cos(B,D_B) - \cos(C,D_B)\,] \quad \rightarrow \ \boldsymbol{\nu_\mu}$
$s^2 = (r.w)^2$ → 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
$\mathbf{QD_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [-\cos(A_E,D_B) - \cos(B_E,D_B - \cos(C_E,D_B)] \quad \rightarrow \ \boldsymbol{\mu}$
$s^2 = (r.w)^2$ → 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
$\mathbf{Q'P_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [\cos(A,P_B) + \cos(B,P_B) + \cos(C\,,P_B)\,] \quad \rightarrow \ \mathbf{c}$
$\mathbf{Q'P_B} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [\cos(A_E,P_B) + \cos(B_E,D_B + \cos(C_E,D_B)\,] \quad \rightarrow \ \mathbf{s}$

$\mathbf{QD_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [\cos(A,D_C) + \cos(B,D_C) + \cos(C,D_C)\,] \quad \rightarrow \ \boldsymbol{\nu_\tau}$
$s^2 = (r.w)^2$ → 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
$\mathbf{QD_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [\cos(A_E,D_C) + \cos(B_E,D_C - \cos(C_E,D_C)\,] \quad \rightarrow \ \boldsymbol{\tau}$
$s^2 = (r.w)^2$ → 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
$\mathbf{Q'P_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [-\cos(A,P_C) - \cos(B,P_C) - \cos(C\,,P_C)\,] \quad \rightarrow \ \mathbf{t}$
$\mathbf{Q'P_C} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.\ [-\cos(A_E,P_C) - \cos(B_E,P_C) - \cos(C_E,P_C)] \quad \rightarrow \ \mathbf{b}$



The* [STPL] *line* → *producing Anti-Leptons and Anti-Quarks F[5-2.2]

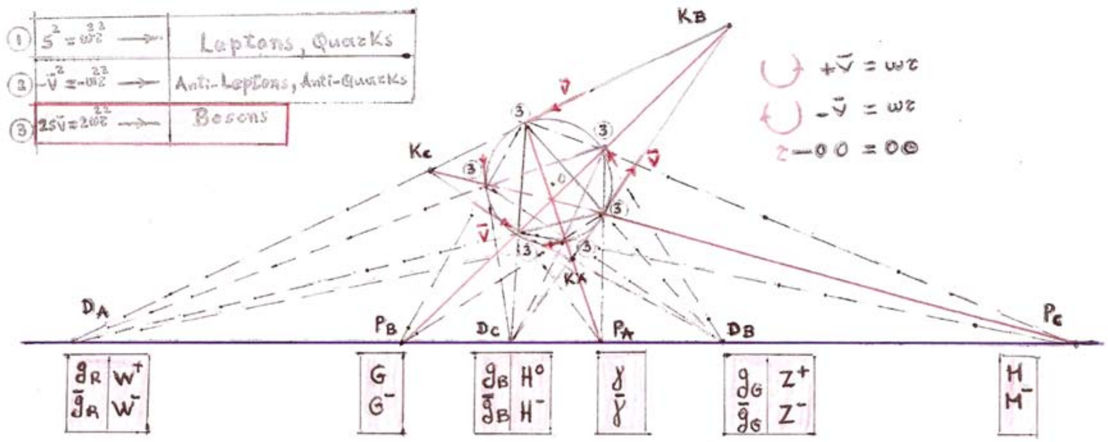
2.. ***Negattive breakage Quantity*** **-** $|\bar{v}|^2 = -|\bar{w}x\bar{r}|^2 = -|\bar{w}.r|^2$ → Being at Space points A,B,C then Action magnitudes Q at coinsiding points D_A,D_B,D_C - P_A,P_B,P_C produces ***Anti-Leptons*** and ***Anti-Quarks*** , and carry them on [STPL] line .

$Q_{DA} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[\cos(A,D_A) + \cos(B,D_A) + \cos(C,D_A)]$ → $\bar{\nu}_e$
$s^2 = (r.w)^2$ → 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
$Q_{DA} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[\cos(A_E,D_A) + \cos(B_E,D_A + \cos(C_E,D_A)]$ → $\bar{e}$
$s^2 = (r.w)^2$ → 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
$Q'_{PA} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[-\cos(A,P_A) - \cos(B,P_A) + \cos(C,P_A)]$ → $\bar{u}$
$Q'_{PA} = |A|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[-\cos(A_E,P_A) + \cos(B_E,P_A - \cos(C_E,P_A)]$ → $\bar{d}$

$Q_{DB} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[-\cos(A,D_B) - \cos(B,D_B) - \cos(C,D_B)]$ → $\bar{\nu}_\mu$
$s^2 = (r.w)^2$ → 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
$Q_{DB} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[-\cos(A_E,D_B) - \cos(B_E,D_B - \cos(C_E,D_B)]$ → $\bar{\mu}$
$s^2 = (r.w)^2$ → 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
$Q'_{PB} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[\cos(A,P_B) + \cos(B,P_B) + \cos(C,P_B)]$ → $\bar{c}$
$Q'_{PB} = |B|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[\cos(A_E,P_B) + \cos(B_E,D_B + \cos(C_E,D_B)]$ → $\bar{s}$

$Q_{DC} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[\cos(A,D_C) + \cos(B,D_C) + \cos(C,D_C)]$ → $\bar{\nu}_\tau$
$s^2 = (r.w)^2$ → 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
$Q_{DC} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[\cos(A_E,D_C) + \cos(B_E,D_C - \cos(C_E,D_C)]$ → $\bar{\tau}$
$s^2 = (r.w)^2$ → 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
$Q'_{PC} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[-\cos(A,P_C) - \cos(B,P_C) - \cos(C,P_C)]$ → $\bar{t}$
$Q'_{PC} = |C|.|s^2| = |r.w|.(r.w)^2 = (r.w)^3.[-\cos(A_E,P_C) - \cos(B_E,P_C) - \cos(C_E,P_C)]$ → $\bar{b}$

The [STPL] line from Breakage Quantity $[2\bar{w}].|s|\,|\bar{r}|.\nabla i = 2(w.r)^2.\nabla$



The* [STPL] *line* → *producing Bosons F[5-2.3]

The [STPL] line → producing Strong Gluon (g) → Electromagnetic(γ) →Weak ($W^{\pm}$, $Z^{\pm}$, $H^{\pm}$) Bosons

3. Breakage Quantity [2w̄].|s|.|r̄.∇i = 2w.(sr).∇i = 2w.(r²w).∇i = 2w.r²w.∇i → Being Tangential at Space points A,B,C and Axial at Space Anti-Space points AAE,BBE,CCE, then Action magnitudes FA at coinsiding points DA, DB, DC and PA, PB, PC 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 AE,BE,CE then on [DA], DB**,** DC → the Gluons **g** and [W ±] , Z ±, H ± Bosons the **W** + particle and the **W̄** , **ḡR** , Anti particles .

QDA = |A|.2|wr|² = |r.w|.2.(rw) ² = 2.(r³.w³). [cos(A,DA)] → **gR**

2.(r³.w³) → Being at Anti-Space point AE, then Action magnitudes Q at coinciding point DA is

QDA = |A| . 2|wr|² = |r.w|. 2. (r².w²) = 2.(r³.w³) .[cos(AE,DA)] → **ḡ R**

2.(r³.w³) → Being at Space and Anti-Space points B,C and BE,CE then magnitudes Q at coinsiding point DA is

QDA = |BC|.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³).[cos (BC,DA)] . sin(BC,DA) → **W** +

QDA = |BE,CE|.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³).[cos(BE,CE , DA)]. sin(BE,CE , DA) → **W⁻**

b.. Breakages on Points A,B,C and on points AE,BE,CE then on DA, [DB**]** **,** DC → the Gluons **g** and W ± , [Z ±] , H ± Bosons the **Z** + particle and the **Z⁻** , **ḡG** , Anti particles .

QDB = |B|.2|wr|² = |r.w|.2.(rw) ² = 2.(r³.w³). [cos(B,DB)] → **gG**

2.(r³.w³) → Being at Anti-Space point BE, then Action magnitudes Q at coinciding point DB is

QDB = |B| . 2|wr|² = |r.w|. 2. (r².w²) = 2.(r³.w³) .[cos(BE,DB)] → **ḡ G**

2.(r³.w³) → Being at Space and Anti-Space points A,C and AE,CE then magnitudes Q at coinsiding point DB is

QDB = |AC|.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³) .[cos(AC, DB)] → **Z** +

QDB = |AE,CE|.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³).[cos(AECE , DB)].sin(AECE , DB) → **Z⁻**

c.. Breakages on Points A,B,C and on points AE,BE,CE then on DA , DB**,** [DC] → the Gluons **g** and W ± , Z ± , [H ±] Bosons the **H** + particle and the **H⁻** , **ḡB** , Anti particles

QDC = |C|.2|wr|² = |r.w|.2.(rw) ² = 2.(r³.w³). [cos(C,DC)] → **gB**

2.(r³.w³) → Being at Anti-Space point CE, then Action magnitudes Q at coinciding point DC is

QDC = |C| . 2|wr|² = |r.w|. 2. (r².w²) = 2.(r³.w³) .[- cos(CE,DC)] → **ḡ B**

2.(r³.w³) → Being at Space and Anti-Space points B,A and BE,AE then magnitudes Q at coinsiding point DC is

QDC = |BA|.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³) . [- cos (BA,DC)] . sin (BA,DC) → **H** +

QDC = |AE,BE|.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³) .[cos(AEBE , DC)].sin(AEBE , DC) → **H̄**

d.. Breakages on Points A,B,C and on points AE,BE,CE then on PA, PB**,** PC → the Photos **γ** , Graviton G ± , M ±, Bosons the **γ , G , M** particles and the **γ̄ , Ḡ, M̄** Anti particles .

Q'PA = | B,CE,PA |.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³). [- cos(BCE,PA)] → **γ**

Q'PA = | C,BE,PA |.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³). [- cos(CBE,PA)] → **γ̄**

Q'PB = | C,AE,PB |.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³). [cos(ACE,PB)] → **G**

Q'PB = | A,CE,PB |.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³). [cos(CAE,PB)] → **G⁻**

Q'PC = | A,BE,PC |.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³). [- cos(ABE,PC)] → **M**

Q'PC = | B,AE,PC |.2|wr|² = |r.w|.2.(r².w²) = 2.(r³.w³). [- cos(BAE,PC)] → **M̄**

Where cos(A,DA), cos(AE,DA) = cos of tangents at points A,B,C - AE,BE,CE and the [STPL] , (x-x axis).

Spin 1 → 2 x ½ :

½ Spin → S = h/2π = h̄ = 6,626.10 $^{-34}$ Js $^{-1}$/2π = 1,05459. 10 $^{-34}$ Js $^{-1}$ = 6,5822.10 $^{-16}$ eVs $^{-1}$ and it is the Energy of a Photon = |w̄.r|² for the Positive and Negative scalar Breakage magnitudes particles.
Quantity → 2|w̄.r|² = 2.[|w̄.r|² = ½ Spin] = Spin 1 and equal to 2.[6,5822.10 $^{-16}$ eVs $^{-1}$] =1,31644.10 $^{-16}$ eVs $^{-1}$.
Spin Anti-Spin is the rotational equilibrium of spaces.
Spin is an Intrinsic property of the three Breakage Quantities 6,5822.10 $^{-16}$ 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 ,v̄, on the breakages.
Energy is equal to the velocity vector |v̄| = |w̄|r, or E = w.rG = 2,5656.10 $^{-8}$ eVs = 2,5656.10 $^{-27}$ Js.

.

6.1.. Photoelasticity :
In Photo elasticity , the speed of light (vector $\bar{v}$) through a Homogenous and Isotropic material , (*transparency , outstanding toughness , dimensional stability , mold ability , very low shrink rate , etc.*) , varies as a function of the direction and magnitude of the applied or residual stresses .
Light through a Polarizing filter (a Plane cavity of thickness L) blocks spatial components except those in the plane of vibration , and if through a second Plane cavity , then the components of the light wave vibrate in that plane only . Polarized light passing through different Flat caves (stressed material) , splits into two wave fronts travelling at different velocities , each parallel to a direction of principal stress but perpendicular to each other. (***Birefringence property of stress material with two indices n1,n2 of refraction***) .The components of the light waves interfere with each other to produce a ***color spectrum*** .
[Retardation ,δ, (*nm*) is the phase difference between the two light vectors through the material at different velocities (fast ,slow) and divided by the material thickness (L) is proportional to the difference between the two indices of refraction i.e. $\delta/L = n2 - n1 = C.(\sigma1-\sigma2)$, where σ1, σ2 are the Principal stresses .
Retardation ,δ, ***determines color bands or fringes*** (*A fringe N is each integer multiple of the wavelength*) where the areas of lowest orientation and stress appear black followed by gray and white ***and as Retardation and stress (σ) go up then the colors cycle through a more or less repeating pattern and the Intensity of the colors diminishes (decreases)*** .
Because the colors repeat at different levels of retardation and stress , then is tracked as color band sequence from the black or white regions and are repeated periodically following the whole fringe of colors , as Black , Gray , White-Yellow , Yellow – Orange (dark yellow) ,Red , Violet (1^{st} order fringe) , *Blue , Blue-green , Green-yellow , Yellow ,Orange (dark-yellow) , Red , Violet* (2^{nd} order fringe) →
In Common circle , with different angular velocity vector , v = w r , in the absence of applied Torques produces a color Spectrum which is , the Color Forces → Gluon Red , Gluon Green , Gluon Blue .

Stability is obtained by the opposite momentum $-\Lambda^-$ where $E = -(\bar{v}\mathbf{x}B) = -(\bar{v}.B)\perp$ → or and $\mathbf{B} \perp \mathbf{E}$ **.**
The two perpendicular Static force fields **E** and Static force field **B** of Space-Anti-Space , ***experience*** on any moving dipole $A^- B = [\lambda , \Lambda]$ with velocity $\bar{\mathbf{v}}$ (*momentum* $\Lambda^- = m\bar{v}$ *only is exerting the velocity vector* $\bar{\mathbf{v}}$ *to the dipole* $\boldsymbol{\lambda}$) a total force $\mathbf{F} = \mathbf{F}_E + \mathbf{F}_B = (\lambda m).\,\mathbf{E} + (\lambda m).\,\bar{\mathbf{v}} \times \mathbf{B}$ which combination of the two types result in a helical motion and generally to any Space Configuration (*Continuum*) extensive property , as ***Kinetic*** (3-current motion) and ***Potential*** (*the perpendicular Stored curl fields E , B*) ***energy , by displacement*** (*the magnitude of a vector from initial to the subsequent position*) ***and rotation*** and equation is as (N5)

The Total Energy State of a quaternion $\mathbf{E_T} = \sqrt{[\,\mathbf{m}\,.\mathbf{v_E}.^2\,]^2 + [\,\boldsymbol{\Lambda}.\mathbf{v_B} + \boldsymbol{\Lambda} \times \mathbf{v_B}\,]^2} = \sqrt{[\,\mathbf{m}\,.\mathbf{v_E}.^2\,]^2 + \mathbf{E}^2}$
$$= \sqrt{[\,\mathbf{m}\,.\mathbf{v_E}.^2\,]^2 + |\sqrt{\mathbf{p_1 v_{B1}}}|^2 + |\sqrt{\mathbf{p_2 v_{B2}}}|^2 + |\sqrt{\mathbf{p_3 v_{B3}}}|^2} \quad ..(N10)$$

i.e. ***a moving Energy cuboid*** (**a**x**b**x**c**) , *rectangular parallelepiped* ***, with space diagonal length***
$\mathbf{E} = \sqrt{\mathbf{a}^2+\mathbf{b}^2+\mathbf{c}^2}$ where → $\mathbf{a} = |\mathbf{p}_1\mathbf{v}_{B1}|$, $\mathbf{b} = |\mathbf{p}_2\mathbf{v}_{B2}|$, $\mathbf{c} = |\mathbf{p}_3\mathbf{v}_{B3}|$ and when

$\bar{\mathbf{v}}_E = \mathbf{0}$ then $E_T = \Lambda.\mathbf{v}_B.+ \Lambda \times \mathbf{v}_B$ → which is the *accelerating removing energy* Λ towards $\mathbf{v}_B$.
$m = \mathbf{0}$ then $E_T = \Lambda.\mathbf{v}_B.+ \Lambda \times \mathbf{v}_B$ → which is the *linearly removing energy* Λ towards $\mathbf{v}_B$.
$\bar{\mathbf{v}}_B = \mathbf{0}$ then $E_T = m\,.\mathbf{v}_E.^2$ → which is the *Kinetic energy in Newtonian mechanics* towards $\mathbf{v}_E$.

6.2. Conclusions :
Any moving monad [z = s + v. i] is transformed into →
1..*In Elastic material Configuration* , as ***Strain energy*** and is absorbed as *Support Reactions* and displacement field $[\nabla\boldsymbol{\varepsilon}\,(\bar{u},\bar{v},\bar{w})]$ upon the deformed placement , (where these alterations of shape by pressure or stress is the equilibrium state of the Configuration $G.\nabla^2.\,\boldsymbol{\varepsilon} + [m.G / (m-2)]\,.\,\nabla\,[\,\nabla.\,\boldsymbol{\varepsilon}\,] = F$) , (Elasticity) [26],

2.. *In Solid material Configuration* , as ***Kinetic*** (*Energy of motion* $\bar{v}$) and ***Potential*** (*Stored Energy*) energy by displacement (*the magnitude of a vector from initial to subsequent position)* and rotation , on the principal axis (*through center of mass of the Solid*) *as ellipsoid* , which is mapped out , by the nib of vector $(\delta\bar{r}_C) = [\,\bar{v}_C + \bar{w}.\bar{r}_n]\,\delta t$, as the Inertia ellipsoid [Poinsot's ellipsoid construction] in (AF) which instantaneously rotates around vector axis $\bar{w}$,φ with the constant polar distance $\bar{w}.Fe/|Fe|$ and the constant angles θs , θb , traced on , Reference (BF) cone and on (AF) cone , which are rolling around the common axis of $\bar{w}$ vector ,*without slipping* , and if Fe , is the Diagonal of the Energy Cuboid with dimensions a,b,c *which follow Pythagoras conservation law* , then the three magnitudes (J,E,B) of Energy-state follow Cuboidal , Plane , or Linear Diagonal direction , and If Potential Energy is zero , then vector $\bar{\mathbf{w}}$ is on the surface of the Inertia Ellipsoid . [26-27] .

3.. *In Quaternion Extensive Configuration* , as ***New Quaternions*** (with Scalar and Vector magnitudes). Points in Space carry A priori the work $W = \int_{A-B} [P.ds] = 0$, where magnitudes P, $d\bar{s}$ can be varied leaving work unaltered (N4). Diffusion (*decomposition*) of Energy follows Pythagoras conservation law where the three magnitudes (J,E,B) of Energy-State follow *Cuboidal* , *Plane* , or *Linear Diagonal* [18].

4.. *In Space conserved Extensive property Configuration (Continuum)* , as ***Kinetic (3-current motion)*** *and* ***Potential (perpendicular Stored curl fields)*** energy by displacement (*the magnitude of a vector from initial to the subsequent position*) and rotation . Energy is conserved in *E and B* curled fields .

5.. The dynamics of any system = Work = Total energy , is transferred as generalized force Qn .
$Qn = \partial W/\partial(\delta\bar{q}n)$, $(\delta\bar{q}n) = \bar{v}n.\delta t = [\bar{v}c + \bar{w}.\bar{r}\, n] \delta t$ = (Translational + rotational velocity) .δt *or*
$Qn = \bar{v}c . (\partial T/\delta t) + \bar{w}.\bar{r}\, n].(\partial T/\delta t)$ → *Translational kinetic energy* + *Rotational kinetic energy* .
.

6.. The ultimate Constituents of Monads (s ,v̄) is the real part ,s, which is the Magnitude of Imaginary part , and the Imaginary part which is Vector v̄ .
The [STPL] is a Geometrical Mechanism (Mould) which transfers the two Quantities of monads from one Level (*Confinement*) to another Level using Quantities or the Breakages of collision between monads. This Mechanism is not the Origin of monads , but it is the Mould (*the Regulative Universe Valve*).
In Common circle (the Sub-Space) of rotating Space Anti-Space [± Λ] , with maximum angular Velocity Vector , v = w r on circumference , [in the absence of applied Torques and because of the Birefringence property of stress material with different indices **n** ***of refraction , which creates the Retardation*** ,δ, ***determining Color Bands or Fringes***] ***Produces a color Spectrum which is , the Color Forces , → Gluon Red , Gluon Green , Gluon Blue .***

7.. In Black holes Energy scale (***λ . Λ = k*** **1**) there are infinite high frequency small amplitude vacuum fluctuations at Planck energy density of 10^{113} J/m3 that exert action (pressure) on the moving Spaces dipole and their Stability is achieved by Anti-space also.

8.. Dipole vectors are quaternions (versors) of waving nature , i.e., one wavelength in circumference in energy levels , that conserve energy by transferring Total kinetic energy T into angular momentum L= r̄ mv̄ = r̄p = r̄Λ , where mass m = is a Constant . Different versors with different Energy (scalar) possess the same angular momentum . A Composition of Scalar Fields (s) and Vector Fields (v̄) of a frame , to a new unit which maps the alterations of Unit by rotation only and transforms scalar magnitudes (particle properties) to vectors (*wave properties*) and vice-versa , and so , has all particle-like properties of waves and particles .In Planck Scale , when the electron is being accelerated by gravity which exists in all energy levels as above , the gravity is still exerting its force so Electrodynamics can be derived from Newton's second law.

9.. Dark matter Energy (**λ . Λ=** ***k*** **3**) is supposedly a homogeneous form of Energy that produces a force that is opposite of gravitational attraction and is considered a negative pressure , or antigravity with density $6x10^{-10}$ J/m3 and G = gravitational constant = L^3/MT^3 = $6{,}7x10^{-11} m^4/ N.sec^4$, Planck force= $Fp = c^4/g = 1{,}21x10^{44}$ N and dynamic Plank length = $\sqrt{h.G / c^3} = 1{,}616x10^{-35}$ m , and the reduced wavelength $\bar{\lambda} = \lambda/2\pi = c / w$.

10.. It has been explained that on [STPL] are carried Leptons , Quarks and Bosons ,*matter and Energy* , which are all Particles with different intrinsic properties acquired from the prior mechanism . In recovery body Space , happen all interactions between Fermions , *particles* , and Bosons following all known laws.
The coupling of quantized Space and Energy (***ds and dP***) becomes on points of dipole **AiBi** through the Scalar potential field **P(X,Y,Z)** where **X ,Y, Z** *are the generalized Forces* ***mapping to Flux Vector field*** **Vp = ∇.P = [** (∂P/∂x) **x** + (∂P/dy) **y** + (∂P/∂z) **z**] = **[** J. **x** + E. **y** + B.**z**] *to the* ***Density Scalar field*** **Dp = ∇.Vp = ∇. (∇.P)** and to the ***Changeable Vector field*** **Cp = ∇ x Vp =∇ x (∇.P)**.
Because the curl of the gradient of a Scalar field vanishes then , **Cs = Cp = 0** (produced fields) .
The gauge freedom Unit vectors **dš = s(n1,2,3) , dP = P(n1,2,3).©** depended in Space and Anti-Space to be a source or sink then **x,y,z ↔ -x,-y,-z** which presupposes Impulses PA = -PB , is force P which is

P = W/ds = ∂/∂š [W] = ∇W = ∇. [∇ J . ©] = ∇ ² J . © where
Vector **J** = (∂P/∂x) **x** = dP(dx).© = Xp and , **∇²J** → the Laplacian of vector field **J** and
G.**∇². (a)** ± G.**∇². (b.i)** = **F** = **∂U / ∂δj**

Electrons circulate around nucleus ***for ever*** by using conserved interchanged ***magnitude* J *as velocity field***, ***magnitude* E *as atom´s energy level field*** and **B *as energy exchanged field*** with the nucleus. Tangent acceleration is a(t) = [û/|u|].d|u|/dt , Centrifugal acceleration is a(c)=|u|d/dt[û/|u|]
Using (cgs) conventional units then **E** and **B** have the same units . **Spin** is ***macroscopic*** **(a)** on bound charge of Space and Anti-Space , *and* ***microscopic*** (**i**) *on any separate dipole AiBi* , combined through [STPL] Mechanism to produce a Positive and Negative charge layer on both sides so the two fields split as **E = Ea + Ei** and **B = Ba + Bi** ***defining the unified Macroscopic and Microscopic bound conservation of Work*** . In a ***Stress System*** , *the State of Principle Stresses* (**σ**) *at each point* (it is the double refraction in ***Photo – Elasticity***) and it is as the Isochromatics lines [(**σ1- σ2**) = J.k/d] or Isochromatics surfaces.

7.. References :

[1] Matrix Structure of Analysis by J.L.MEEK library of Congress Catalog 1971.
[2] Der Zweck im Rect by Rudolf V. Jhering 1935.
[3] The great text of J. L.Heiberg (1883-1886) and the English translation by Richard Fitzpatrick.
[4] Elements Book 1 . .
[5] Wikipedia, org, the free Encyclopedia.
[6] Greek Mathematics by, Sir Thomas L.Heath - Dover Publications, Inc, New York. 63-3571.
[7] [T] Theory of Vibrations by , William T. Thomson (*Fourth Edition*)
---
[8] A Simplified Approach of Squaring the circle , on Scribd & Vixra (MELAN.doc)
[9] The Parallel Postulate is depended on the other axioms, on Scribd & Vixra (EUCLID.doc)
[10] Measuring Regular Polygons and Heptagon in a circle , on Scribd & Vixra (REGULAR.doc)
[11] The Trisection of any angle, on Scribd & Vixra (TRISECTION.doc) .
[12] The Euclidean philosophy of Universe, on Scribd & Vixra (EUCLID.Spaces.doc).
[13] Universe originated not with BIG BANG, on Scribd & Vixra (EUCLID.not BIG BANG.doc) .
[14] Complex numbers Quantum mechanics spring from Euclidean Universe, on Scribd & Vixra (Complex.Quantum. Euclid.doc) .
[15] Zenos Paradox, nature of points in quantized Euclidean geometry , on Scribd & Vixra [ZENO-PARADOX.doc] .
[16] The decreasing tunnel, by Pr. Florendin Smarandashe, on Scribd & Vixra (ORTHIC.doc) .
[17] The Six-Triple concurrency line – points , on Scribd & Vixra (Six.TriplePo.Line.doc).
[18] Energy laws follow Euclidean Moulds , on Scribd & Vixra (Pythagoras.doc).
[19] Higgs particle and Euclidean geometry, on Scribd & Vixra (Higgs - Particle.doc).
[20] Higgs Boson and Euclidean geometry , on Scribd & Vixra (Higgs - Boson.doc).
[21] Geometry – Space Universe, on Scribd & Vixra (Space - Universe.doc).
[22] Quantization of Points and of Energy, on Scribd & Vixra (Space - Energy.doc).
[23] Quantization of Points with Energy , on Scribd & Vixra (SpaceEnergy.doc) .
[24] The Parallel Postulate and Spaces (IN SciEP).
[25] Gravity as Vorticity in geometry on Scribd & Vixra (Gravity.doc).
[26] The Beyond Gravity Forced fields on Scribd & Vixra (U-Gravity.doc).
[27] The Wave nature of the geometry dipole on Scribd & Vixra (Wave.Na.doc).
[28] The Outside Relativity Space – Energy Universe on Scribd & Vixra (Energy.U.doc).
[29] The Geometrical Exponent Interpretation of Planck - Length on Scribd & Vixra (Planck.doc).
[30] Gravity and Planck`s Length as the Exponential Geometry Base of Spaces on < Ethan Publishing > (Planck-Gravity.doc).
[31] The Fundamental Particles of Planck`s confinement (Fundaparted.doc).
[32] The Origin of the Fundamental Particles in Planck`s confinement (Fundapar.doc).
[33] The Quantization of Points and Potential and the Unification of Space and Energy with the Universal Principle of Virtual Work , on ***Geometry Primary dipole*** , (is worked and done ? ?)

by markos Georgallides .