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## STPL - Mechanism is The - Energy–Space Generator

Markos Georgallides

<sup>1</sup>Larnaca (Expelled from Famagusta town occupied by the Barbaric Turks Aug-1974), Cyprus  
Civil-Structural Engineer (NATUA), Athens  
\* Markos Georgallides : Email address : [georgallides.marcos@cytanet.com.cy](mailto:georgallides.marcos@cytanet.com.cy) :

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### Abstract:

Everything in this cosmos , is Done or Becomes , from a Mould .

**Geometry** has the Monad , *a discrete continuity*  $AB$  , Becoming from the *Zero-Point*  $\equiv 0$  , and **Mechanics-Physics** the Recent-Acquisition of The Material-Geometry , where Zero-point  $0 = \emptyset = \{\oplus + \ominus\} =$  The Material-point = *The Quantum* = Positive Space and Negative Anti-Space . [58]

**Monad in Geometry**  $\rightarrow$  **Linearly** is , through mould of Parallel Theorem [44-45] , *which are the equal distances between points of parallel and line*  $\rightarrow$  **In Plane** is through mould of Squaring the circle [46-47] , *where the two equal and perpendicular monads consist a Plane acquiring the common Plane- meter  $\pi$*  ,  $\rightarrow$  **In Space** (volume) is through mould of the Duplication of the Cube [44-46] , *where any two Unequal perpendicular monads acquire the common Space-meter  $^3\sqrt{2}$  , to be twice each other* . **Monad in Mechanics and Physics** is  $\rightarrow$  The Material-point = *discrete continuity*  $|\{\oplus + \ominus\}| =$  **The Quantum** through mould of Space -Anti-space in itself , *which is the material dipole in inner monad Structure and is Identical with the Electromagnetic cycloidal field of Energy monads* . Energy monads presuppose Energy-Space Base (*the beyond Planck's length , Gravity's and Spaces' levels* ) the [PNS] Space Anti-Space as work  $\rightarrow W = \int P.ds = 0$  , which is the cause of Spaces existence and the motion of particles . Since also are Quantized as the Complex numbers , then , this property is encountered in Stationary waves where energy  $E$  , is proportional to angular velocity  $\mathbf{w}$  . [ 58 ] This property of particles , *Angular momentum = Spin* , becomes from the Intrinsic , *Inward* , cycloidal wave motion , which is their cause of external motion *as outward waves* . The varying lever arms , on cycloid-evolute , is the cause of vibrations and which cause the EM - waves and Spin . Common-circle of radius ,  $r_c$  , is the common source of vibration excitation for the Space , Anti - space , considered as rotating with angular velocity ,  $\mathbf{w}$  , and then their relative motion becomes the , Rolling of Space ABC on Anti-space  $A_E B_E C_E$  and since also this relative motion is applied on STPL line , then  $D_A , P_A$  , points on it are the corresponding linear links of vibrations and Poles of rotation. [58]. [STPL] is a **Geometrical Mechanism** that produces and composite all opposite Space and Anti-space Points to Material-points  $\rightarrow$  the three Breakages  $\{[s^2 = \pm (\bar{w}.r)^2 , [\nabla i] = 2(wr)^2\}$  of [MFMF] mechanism under  $\bar{v} = \bar{c}$  thrust} , and through it are becoming **The Fermions**  $\rightarrow [ \pm \bar{v}.s^2 ]$  and **The Bosons**  $\rightarrow [\bar{v}.\nabla i = [\bar{v}.2(\bar{w}.r)^2] = [\bar{v}.2s^2 ] , [35]$

**Keywords :** STPL , as The Mould of Particles` Genesis , Spin the cause of Particles` motion

## 1. Introduction

### **Zeno's Paradox and the nature of Points .**

Word , *quantization* , has to do with the discrete continuity, which describes the Physical reality through the Euclidean conceptual , for Points Straight lines, Planes , the Monads in Universe and the Dual Nature of Spaces as *discrete* and *continuous* . Euclidean Geometry is proved to be the *Model of Spaces* and Material Geometry the *Model of Physical Reality* since it is Quantized as the Complex numbers , which are such.

### **The proposed Euclidean solution.**

Straight line AB is continuous in Points between A and B [ i.e. all points between line segment AB **are the elements which fill AB** , and which Points are also Nothing , or Everything else and are Anywhere as in above and for Achilles in order to run the 100 m, has to pass the infinite points between point A and point B . A point ,T, is on line AB only when exists  $TA + TB = AB$  ( *or the whole AB is equal to the parts TA , TB , as it is the logic of equality and the logic for equations* ) .

Since in nature exists the Principle of Equality and Un-equality consequently any Comparison is including the following three cases .

1.. In case  $TA + TB > AB$  then point T is not on line AB , **it is OUT**, and then issues the Property of **Anequality** and it is the triangle ABT lying in ABT Plane . This is the main difference between the Euclidean and the Non-Euclidean geometries . On this is based the Philosophy of Parallel fifth Postulate which is proofed to be a Theorem and also all the Ancient unsolved and now solved problems . [44-47]

**In Euclidean Geometry points A , B , T consist the Plane ABT , while in Others a curve in Plane ABT .**

The Definition 2 ( *a line AB is breathless length* ) is altered as  $\rightarrow$  for any point T on line AB exists  $TA + TB = AB$  i.e. it is the equation which is and equality . [9-10]

**Since points have not any dimension and since only AB has dimension** (the length AB and for any  $\overline{AT}$  the length AT ) and since also on  $\overline{AB}$  exist infinite line segments  $AT < \rightarrow AB$  , which become the quantized

material- lengths and have **infinite Spaces, Anti-Spaces and Sub-Spaces** , then is impossible in--bringing Achilles to the Tortoise's starting point B , and also for Tortoise's to 110 m , because as follows , **Straight line AB is not continuous unless a Common Dimensional Unit  $AT > 0$  or  $AT = ds \rightarrow AB$  is accepted and thus in this way exists ,**

a.. Straight line AB is continuous with points as filling ( *Infinitely divisible* )

b.. Straight line AB is discontinuous ( *discrete* ) with dimensional Units , ds, as filling (that is made up of finite indivisible parts the Monads ,  $ds \neq 0$  , as in Material geometry ) defining the Space Anti-space at A,B points and Sub-space as [  $ds \neq AB / n$  , where  $n = 1,2, \rightarrow \infty$  )

c.. Straight line AB is continuous in ,ds, with  $ds = 0$  as points of filling , and also discontinuous ( *discrete* ) with the dimensional Units ,  $ds \neq 0$  , defining the Space , Anti-space at A,B points and Sub-space , where ,  $ds = quantum = AB / n$  , (where  $n = 1,2,3 \rightarrow \infty$  ,  $= [ a+b.i ] / n = complex number and Infinitely divisible which is keeping the conservation of Properties at End Points A , B$  ) as filling , **and continuous with points as filling** ( for  $n = \infty$  then  $ds = 0$  i.e. the  $\infty$  Positions of points in ds ) , i.e.

Monads  $ds = 0 \rightarrow \infty$  are simultaneously ( *actual infinity* ) and also ( *potential infinity* ) in Complex number form , and this defines that, infinity exists between all points which are not coinciding, and because ,**ds**, comprises any two edge points with imaginary part then this property differs between the infinite points .

**This is the Vector relation of Monads , ds , ( or , as Complex Numbers in their general form  $\bar{w} = a + b . i$  ) , which is the Dual Nature of lines ( discrete as  $\frac{\bar{w}}{|a^2+b^2|}$  and continuous as points (.) and in recent Material-Geometry the Work  $\equiv$  Energy  $\equiv$  Monads  $\equiv$  Imaginary part ,i , ).** [57-58]

2.. In case  $TA + TB = AB$  then point T is **ON** straight line AB where then issues the Property of Equality.

On *Monad* AB which maybe equal to  $\rightarrow 0 \leftrightarrow AB \leftrightarrow \pm \infty \leftarrow$  exists *< a bounded State of energy for each of the Infinite Spaces and Anti-Spaces called **Energy monad** in Space moulds  $>$  and this [ Dipole AB = Matter = The meter of the reaction to Energy-change ] is the communicator of Impulse [Force P] of Primary Space . This Energy monad is modified as the Quanta of Energy , a monad , and is represented as above Dipole i.e.*

This motion is Continuous and occurs on Dimensional Units , ds , which is the Maxwell's Monads-Displacement-Electromagnetic-current [  $E + \vec{v} \times P$  ], and not on Points which are dimensionless , upon these Bounded States of [ PNS ] , Spaces and Anti-Spaces , and because of the different Impulses  $P_A$  ,  $P_B$  , of edge points A, B, and that of Impulses ,  $P_{iA}$  ,  $P_{iB}$  of Sub-Spaces , they are either on straight lines AB or on tracks of the Spaces , Anti-Spaces and Sub-Spaces of AB . The range of Relative velocities is bounded according to the single slices of spaces ( ds ) . [ 14 -15 ] , [39-40] .

3.. In case  $TA + TB < AB$  then point ,T, is **IN** straight line AB , where then is not issuing the Property of Equality or Un-equality .

It is issuing a **New Paradox in Geometry** which is the recently material-Geometry as in articles [55-56] and connects Geometry-Mechanics-Chemistry-Physics.

From D. Hilbert's  $\rightarrow$  4. Problem of the straight line as the shortest distance between two points A and B become the following :

**Lobachevsky** : (Hyperbolic Geometry) is excluding the axiom of parallels or assume it as not satisfied .

**Rieman's** : (Elliptic Geometry) is excluding the axiom of parallels , assuming that one and only one Point lies between the other two.

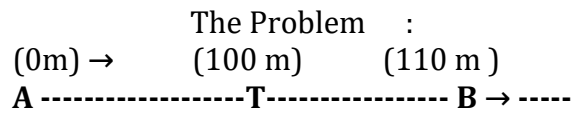
**Hilbert's** : (Non-Archimedean Geometry) is excluding the axiom of parallels , assuming that Infinitive Points on Parallels lie between the other two and straight line is the shortest distance between the two points .

**Euclid's-Markos** : (Geometry - Material Geometry) ,

In Definition 2 , ( a line AB is breathless length ) is altered as , for any point T on line AB exists Equality  $TA + TB = AB$  .

The critic of all above is in my articles , and because of the inattention in the establishment in these Definitions , allowed the creation of Non-euclid Geometries which acted Negatively to the Right-Orientation of sciences.

**1.1. Achilles and the Tortoise :**



**< In a race , the Quickest runner , Achilles , can never overtake the Slowest , Tortoise , since the Pursuer must first reach the Point whence the Pursued started , so that the Slower must always hold a lead >**

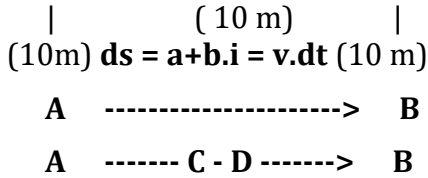
This problem was devised by Zeno of Elea to support Parmenides's doctrine that *< all is one in Euclidean Absolute Space >* , contrary to the evidence of our senses for plurality and change and to others arguing the opposite . Zeno's arguments are as proof by contradiction or ( *reduction ad absurdum* ) which is a philosophical dialectic method . Achilles at point ,A, allows the Tortoise at point ,T, a head start 100 m and each racer starts running at some constant speed , *one very fast and one very slow* , the Tortoise say has further 10 m at point ,B, .

Since Straight line AB is continuous with points as filling , *The Quickest* , has to pass *Infinitive* points to reach point T, so since the steps are points (  $\frac{AB}{\infty} = 0$  ) *The Quickest* will never reach point T . The same also for *The Slower* with step , (  $\frac{TB}{\infty} = 0$  ) will never reach point B .

**1.2. The Arrow Paradox (Arrow) :**

The Problem :

**< If everything when it occupies an equal Space is at rest , [PNS] , and if that which is in locomotion is always occupying such a Space at any moment , the flying Arrow is Therefore motionless >**



The Arrow Paradox is not only a simple mathematical problem, because is referred also to ***motion in Absolute Euclidean Space***, i.e. in a Space where ***issues Geometry***, with all the unsolved till recently problems as, *The Parallel Postulate the Squaring of circle etc.*, and also the ***Physical*** where Space [PNS] is not moving and because of its Duality (*discrete and continuous as Complex numbers are*), shows that,

***Time is not existing as any essence but only a measure for measurements, a number.***

This Paradox ***is not*** in metaphysical sphere of mind since is was proved in [15] that, Complex numbers and Quantum Mechanics Spring out of ***the Quantized Euclidean Geometry.***

As before Straight line AB is discontinuous (***discrete***) with dimensional Units, ***ds=CD*** as filling and ***continuous with points*** as filling (The Complex Numbers in the general form  $w = a + b \cdot i$ ), ***which is the Dual Nature of lines*** (line = *discrete with, Line-Segments, and continuous with points*).

It has been shown that PNS Primary Neutral Space is not moving and Time is not existing, so *Points*, in Primary Space cannot move to where they are because are already there and motion is impossible. Since any *Points C, D* of the Primary Neutral Space, PNS, are motionless ( $v = 0$ ) this is at any Time (the composed instants are  $dt = 0$ ), and so then motion is impossible, i.e.

issues [ $ds = a + b \cdot i = v \cdot dt$ ] where, for  $a = 0$  then  $ds = b \cdot i = v \cdot dt$  and for  $b \neq 0$  and  $dt = 0$  then  $ds = Constant = v \cdot 0 \rightarrow$  i.e.  $v = \infty$ , For  $b = 0$  then  $ds = a = v \cdot dt$  and for  $dt = 0$  then  $\rightarrow ds = a = Constant = v \cdot 0 \rightarrow$  i.e. again,  $v = \infty$ ,

***Therefore in PNS,  $v = \infty, T = 0$ , meaning infinite velocity and Time not existing, so***

***Since Arrow is moving from point A to point B, then exists the Numerical order  $A \rightarrow B$  which is not valid for Temporal order (dt). In case that  $dt = 0$  then motion from Point A to point B has not any concept, and the distance CD and anywhere exist the Equal CD is unmovable, i.e. Motion of points C, D of PNS is not existing because time ( $dt = 0$ ) and infinite velocity ( $v = \infty$ ) exists, while motion of the same points C, D exists in PNS out of a moving Sub-Space of AB (arrow CD is one of the  $\infty$  roots of AB) where,***

$$(ds = CD = Monad \text{ in PNS}). [15].$$

It has been shown that Primary Neutral Space [PNS] is not moving and Time is not existing, so *Points*, in Primary Space cannot move, to where they are, because are already there and motion is impossible. Since *Points T, C,,,* of Primary Neutral Space, PNS, are motionless ( $v = 0$ ) at any Time (the composed instants are  $dt = 0$ ) then motion is impossible. i.e.

*In PNS  $v = \infty$  and Time = 0, meaning infinite velocity, v, and Time is not existing, so since any Arrow (vector) moving from point A to point B, then exists a Numerical order  $A \rightarrow B$  which is not valid for Temporal order (dt). In case  $dt = 0$  then motion from Point A to point B has not any concept, and distance, CD magnitude, and anywhere exist the Equal CD it is unmovable,*

*i.e. The Motion of points C, D, T..... of PNS is not existing because time ( $dt = 0$ ) and for  $ds = Any\ constant$  exists with infinite velocity ( $v = \infty$ ) while motion of the same points C, D, T exists in PNS out of a moving Sub-Space of AB (Included Arrow CD is one of the  $\infty$  roots of line segment AB). Monads  $ds = CD = 0 \rightarrow \infty$  are Simultaneously, actual infinity (because for  $n = \infty$  then  $ds = [AB / (n = \infty)] = 0$  i.e. a point) and, potential infinity, (because for  $n = 0$  then  $ds = [AB / (n = 0)] = \infty$  i.e. the straight line through sector 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 differs between*

the ,i, infinite points or as  $d\bar{s} = \lambda i + \nabla i$ ,  
i.e. it is quaternion .

Since Primary point ,A, is the only Space then on this exists the Principle of Virtual Displacements  $W = \int_A^B P \cdot ds = 0$  or  $[ds \cdot (P_A + P_B) = 0]$  , i.e. for any monad  $ds > 0$  Impulse  $P = (P_A + P_B) = 0$  and  $[ds \cdot (P_A + P_B) = 0]$  , Therefore , Each Unit  $AB = ds > 0$ , exists by this Inner Impulse (P) where  $P_A + P_B = 0$  ,  $\rightarrow$  i.e. The Position and Dimension of all Points which are connected across the Universe and that of Spaces exists , because of this equilibrium Static Inner Impulse , on the contrary should be one point only (Primary Point  $A \equiv$  Black Hole  $\rightarrow ds=0$  and  $P = \infty$ ).[17,22] . Monad AB is dipole  $[A(P_A) \leftarrow 0 \rightarrow (P_B)B]$  and it is the symbolism of the two opposite forces  $(P_A)$  ,  $(P_B)$  which are created at points A,B . This Symbolism of primary point ( zero 0 is nothing ) shows the creation of Opposites , A and B , points from this zero point which is the Non-existence. [13] .

All points may exist with force  $P = 0 \rightarrow \{$  PNS the Primary Neutral Space $\}$  and also with  $P \neq 0$  ,  $( P_A + P_B = 0 )$  ,  $\{$  PS is the Primary Space $\}$  for all points in Spaces and Anti - Spaces , therefore [PNS] is self-created , and because at each point may exist also with  $P \neq 0$  , then [ PNS ] is a ( perfectly Homogenous , Isotropic and Elastic Medium ) Field with infinite points (i) which have a  $\pm$  Charge with force  $P_i = 0 \rightarrow P = \Lambda \rightarrow \infty$  and containing everything .

Since points A ,B of [PNS] coincide with the infinite Points , of the infinite Spaces , Anti-Spaces and Sub-Spaces of [PNS] and exists there rotational energy  $\pm \Lambda$  and since Motion may occur at all Bounded Sub-Spaces  $(\pm \Lambda , \lambda)$ , then this Relative motion is happening between all points belonging to [PNS] and to those points belonging to the other Sub-Spaces  $(A \equiv B)$  . The Infinite points in [PNS] form infinite Units ( The monads = segments )  $A_i B_i = ds$  , which equilibrium by the Primary Anti-Space by an Inner Impulse (P) at edges A , B where  $P_{iA} + P_{iB} \neq 0$  , and  $ds = 0 \rightarrow N \rightarrow \infty$  .

Monad , discrete , ( Unit  $ds =$  Quaternion )  $\overline{AB}$  is the ENTITY and  $[AB - P_A , P_B ]$  is the LAW , therefore Entities are embodied with the Laws . Entity is quaternion  $\overline{AB}$  , and law  $|AB| =$  Energy length ( the energy quanta ) of points  $|A,B|$  or the wavelength where then

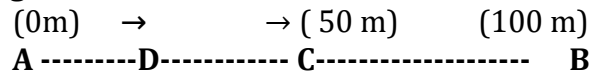
$AB=0$  and imaginary part are the equal forces  $P_A , P_B$  as the fields , the medium , in monads , ( This is distinctly seen for **Actions at a distance** , where there the continuity of all intermediate points being also nothing , **is succeeded on quantized** , tiny energy volume which consists **the material point** i.e.

A field, the medium , or by the Exchange of energy in the Inner-monads field ) . [39-40]. Pythagoras definition for a **Unit**  $\rightarrow$  is a Point without position while a **Point**  $\rightarrow$  the **Material Point** is a Unit having position .

**1.3. The dichotomy Paradox ( Dichotomy ) :**

The Problem :

< **That which is in locomotion must arrive at the half-way stage before it arrives at the goal** >



As before Straight line AB is not continuous unless a Common Dimensional Unit  $AC > 0$  or  $ds = 0 \rightarrow AB / 2 \rightarrow AB$  is accepted and this because point C is on line AB where then issues  $CA + CB = AB$  and since  $CA = CB$  then  $CD < CB$  therefore point D on (AD) will pass through C on(AC) before it arrives at the goal B on (AB).

**1.4. The Algebraic Numbers :**

From priors  $Monad \equiv AB = 0 \leftrightarrow AB \leftrightarrow \pm \infty$  , **is and also represents** the Spaces ,A, the Anti-Spaces ,B, Sub-Spaces of AB which are **the Infinite Regular Polygons** , on circle with AB as Side , and on circle with AB as diameter , and it is what is said , *monad in monad* . According to De Moivre's formula the n-th roots on the unit circle AB are represented by the vertices of these Regular n-sided Polygon inscribed in the circle which are Complex numbers in the general form as ,  $w = a + b.i = r.e^{(i\phi)}$  , and, a and b = Real Numbers ,  $r = \sqrt{a^2 + b^2}$  ,  $(\pm) i =$  Imaginary Unit. We will show that since Complex Numbers are **on Monad AB** (Any two points non coinciding are monads) and it is the only manifold , for the Physical reality , **so then Euclidean Geometry is also Quantized** . This geometrically is as follows,

- a. Exists  ${}^2\sqrt{1} = \pm 1$  or square roots of monad are  $[-1 \leftrightarrow +1]$ , therefore **xx** (axis) coordinate system represents the one-dimensional Space (+1) and the Anti-Space (-1) which is ( the Straight line),  $1.1 = 1$ ,  $(-1).(-1) = 1$   $[\ +i \ ]$
- b. Exists  ${}^2\sqrt{-1} = \pm i$  or  $[\ \downarrow \ ]$ , therefore **yy** (axis) coordinate system represents  $[-i]$  a perpendicular on  $(-i).(-i) = +i^2 = +(-1) = -1$ ,  $(+i).(+i) = +i^2 = -1$
- c. Exists  ${}^3\sqrt{1} =$  the three roots  $[ 1, -\frac{1}{2} + (\sqrt{3}.i) / 2, -\frac{1}{2} - (\sqrt{3}.i) / 2 ]$

therefore **xx-yy** coordinate system represents the two - dimensional  $\pm$  Spaces and  $\pm$  Complex numbers, (the Plane)  
 $1.1.1 = 1$ ,  $[-\frac{1}{2} + (\sqrt{3}.i) / 2]^3 = 1$ ,  $[-\frac{1}{2} - (\sqrt{3}.i) / 2]^3 = 1 + i$

- d. Exists  ${}^4\sqrt{1} = {}^2\sqrt{{}^2\sqrt{1}} = {}^2\sqrt{\pm 1} = [ +1, -1 ], [ {}^2\sqrt{-1} = +i, -i ]$   
 or  $-1 \leftrightarrow +1, \downarrow$

therefore coordinate systems **xx - yy** represent all these Spaces,  $-i$  ( $\pm$  Real and  $\pm$  Complex numbers), where Monad = 1 = ( *that which is one* ), represents the three-dimensional Space and Anti-Space (the Sphere) which is,  $[\pm 1]^4 = [\pm i]^4 = 1$ . The fourth root of **1 are the vertices of Square in circle** with **1** as diameter and this because the Geometrical Visualization of Complex numbers, is the formula  ${}^4\sqrt{1} = \pm 1, \pm i \dots(d)$  and also since  $\pm 1$  is the one-dimensional **real Space** ( *the straight line* ), the vertical axis is the other one-dimensional **Imaginary Space**  $\pm i$ .

Since for dimension, *discrete*, are needed N+1 points, then (d) is representing the Space with three dimensions (dx,dy,dz) which are Natural, Real and Complex. Monads (The Entities = AB) are the Harmonic repetition of their roots, and since roots are the combinations of purely real and purely Imaginary numbers, *which is a similarity with Complex numbers (Real and Image)*, then, **Monads are composed of Real and Imaginary parts as Complex Numbers are**, i.e.

Objective reality contains both aspects ( Real and Imaginary, discrete, AB, and Continuous, Impulses  $P_A, P_B$ , etc.) meaning that *Euclidean -Geometry is such Quantized, which is the Energy-Space*. [ 15]

***i.e. The Position and Dimension of all Points which are connected across the Universe and that of Spaces exists, because of this Static Inner Impulse P, on the contrary should be one point only (Primary Point  $\equiv$  Black Hole  $\rightarrow ds = 0$ ). [43 - 45] Impulse is  $\infty$  and may be Vacuum, Momentum or Potential or Induced Potential.***

Change (motion) and plurality are impossible in Absolute Space [ PNS] and since is composed only of Points that consist an Unmovable Space, then neither Motion nor Time exists i.e. a constant distance  $AB = ds =$  monad anywhere existing is motionless. The discrete magnitude  $ds = [AB / n] > 0 =$  *the quantum*, and for infinite continuous **n, then ds** convergence to **0**. Even the smallest particle ( say a photon ) has mass, *the reaction to velocity change*, [15] and any Bounded Space of  $ds > 0$  is not a mass-less particle and occupies a small Momentum which is the motion.

The Physical world is scale-variant and infinitely divisible, consisted of finite indivisible entities  $ds = AB \rightarrow 0$  called monads and of infinite points ( $ds = 0$ ), i.e. The Euclidean and the Material Geometry.

All entities are Continuous with points and Discontinuous, *discrete*, with  $ds > 0$ .

In PNS  $dt = 0$ , *which is the meter of velocity changes*, so motion cannot exist at all.

**Since any points A,B of PNS coincide with the infinite Points**, of the infinite Spaces, Anti-Spaces and Sub-Spaces of PNS, and since Motion may occur at all Bounded Sub-Spaces then this **Relative motion** is happening on the, **e**, -dimensional to **xx** Space and  $\leftrightarrow$  Anti-Space (the Straight line) between all points belonging to PNS and those belonging to other Spaces.

Time exists in Relative Motion and it is the numerical order of material changes in the PNS - Space, and is not a fundamental entity as is said in Relativity.

On Monad AB, in any Space-level, and which is  $= 0 \leftrightarrow AB \leftrightarrow \pm \infty$  exists < a bounded State of energy for each one between the Infinite Spaces and Anti-Spaces > and the

[ Dipole AB = Matter = monad ] is the communicator of Impulses [P] of the Primary Space.

This Energy monad is modified as the Quanta of Energy and is represented as the Dipole of energy monads in any Space-level.

2.. Euclidean and Non-E Geometries .

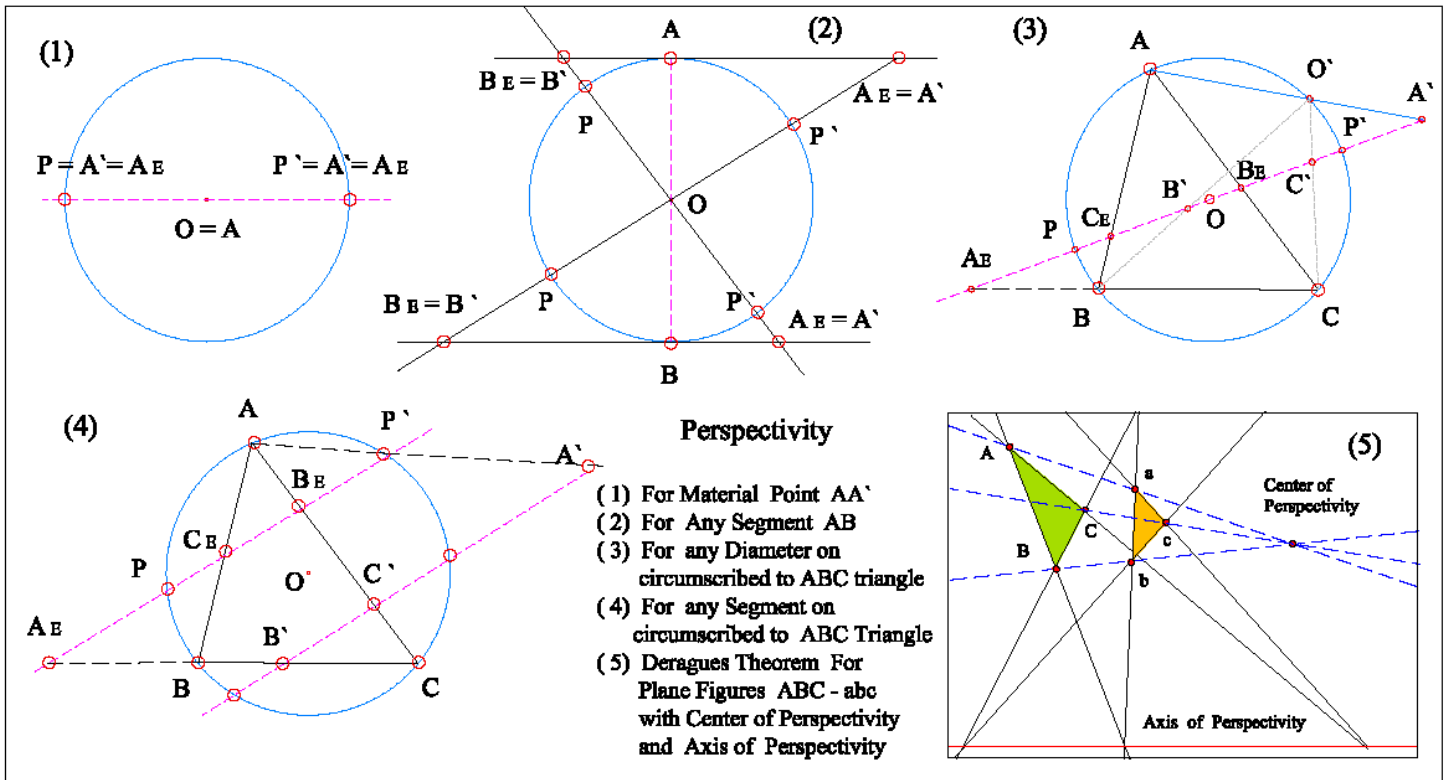


Figure.1.. Pole and Axis of Perspectivity for Points, Sectors, Planes, Volumes. The two Perspective Desargues triangles ABC - abc :

2.1. Perspectivity :

Projective in geometry has to do with Points, Lines, Planes and Spaces embedded in Euclidean geometry as in Fig.1.

In (1) Perspective Points P, P' lie on line PP' which is monad AA', and where O is their middle point of this material point AA'.

In (2) Perspective Points P, P' lie on the circumference of the circumscribed sphere of Plane ABO through AB axis, where O is the common circumcenter of Segment AB.

In (3) Perspective Points P, P' lie on the Diameter of the circumscribed circle in Plane ABC, where O is the circumcenter of triangle ABC and O' is the concurrent point on circle.

In (4) Perspective Points P, P' lie on any segment of circumscribed circle in ABC Plane, with O as center and parallel to conjugate A'B'.

In (5) Perspective Points P, P' lie on the Axis of Perspectivity of the Planes of circumscribed circles of Planes ABC, abc being centrally perspective.

Projective geometry, ( Desargues' theorem ), declares that, two triangles ABC, abc are in perspective axially, if and only if they are in perspective centrally.

We will show that, **Perspective and Projective Geometry** is embedded and it is an **Extrema** in Euclidean geometry.

Proof :

a.. In F1-(4) , Two points P , P' on circumcircle of triangle ABC , form **Extrema** on line PP'. Symmetrical axis for the two points is the mid-perpendicular of PP' which passes through the center O of the circle, therefore the 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  $A_E , B_E , C_E$  are Symmetrically placed as the other three points  $A' , B' , C'$  on this Parallel axis .

b.. In F1-(3) points P , P' are on any diameter of the circumcircle , and 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 in F1-(5) , a pair of lines of the two triangles ( ABC , abc , ) are parallel , then extrema case is when their point of intersection recedes to infinity , and axis PP' passes through the circumcenters 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 are concurrent in a point , on the diameters and through the vertices of the corresponding triangles .**

c.. When all pairs of lines of two triangles are parallel , the equal triangles , then points of intersection recede to infinity , and axis PP' passes through the circumcenters of the two triangles ( The Extrema case ).

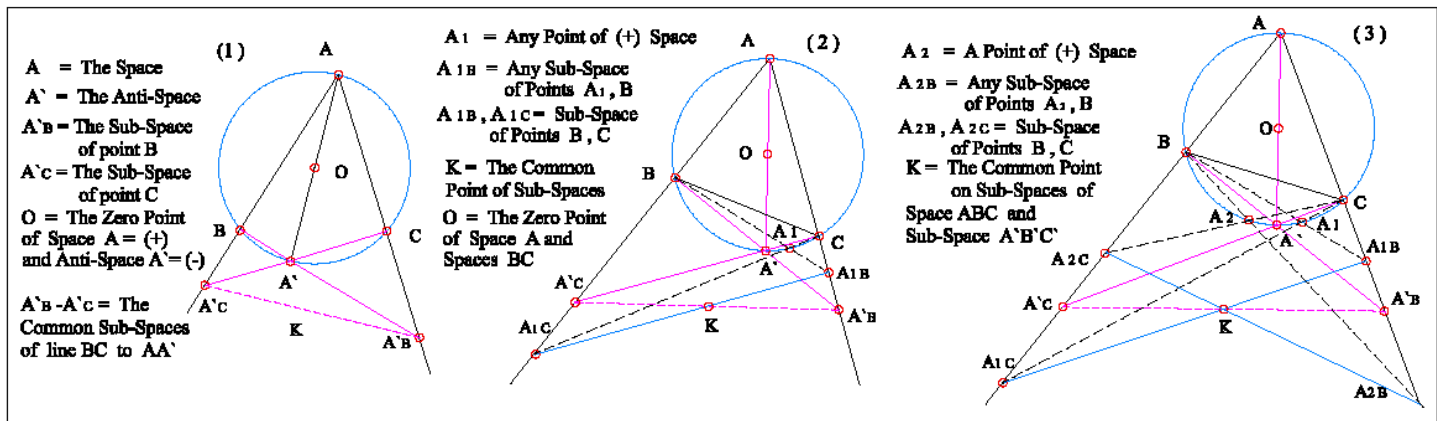
d.. When the second triangle is a point P then axis PP' passes through the circumcenter of triangle .

From above is shown that *Perspectivity* exists between any triangle ABC , a line PP' and a center O , where then exists Extrema for each Point , Line , Plane , Space etc. i.e.

**Perspectivity in a Plane is transferred on lines and from lines to Points . This is the compact logic in Euclidean geometry , which holds in Extrema Points , and thus Projective and Perspective - Geometry is an Extrema in Euclidean-Geometry in all levels without controversy or contradiction .**

Mathematical interpretation and all the relative Philosophical reflections based on the Non - Euclid geometry theories , must be properly revised and resettled in the truth one.

For conceiving alterations from Point to sectors discrete , lines , plane and volume is needed Extrema knowledge where there happen the inner transformations on geometry and the external transformations of Physical world .



**Figure.2..** The Coexistence of Space ABC and Anti-space  $A' , B' , C'$  in a Plane .

The Spaces , Anti-Spaces of One Point is  $A \leftrightarrow A'$  , of Two Points  $B, C \leftrightarrow A'B , A'C$  of Three Points  $ABC$  , the Plane , is  $ABC \leftrightarrow A' , A'B , A'C$  and are the Extrema points on any circumcircle in triangle ABC .

Discrete , on Geometry happens in all levels and in STPL as shown below.



**2.2. The Extrema Euclidean Geometry :**

1.. In Figure .2. Extrema of a point A is point A' on Straight line AA' and the middle point of segment AA' is point O with equal distance OA = OA'. From point O is drawn the only one circle (O,OA=OB) on which exist infinite points forming any triangle ABC in the circle of this diameter AA'. Point A represents the Space and point A' the Anti-space .

In E-geometry the two points equilibrium because of **equal distances** OA , OA' from midpoint O while in Material-Geometry equilibrium because of **equal Forces** PA , PA' at end points A , A' , from midpoint O .

Is shown also the relation between point A' which is the Anti-space , with the three points A,B,C representing the Space-Plane . Lines CA', BA' produced , intersect lines AB , AC at points A'C , A'B respectively . Points A'C , A'B represent the Sub-space of Space , Anti space A↔A'.

A1 is any point on the circle between the points B , A'.

CA1 , BA1 produced intersect lines AB , AC at points A1C , A1B respectively.

Show that lines A1C , A1B are concurrent at the circumcenter K of triangles CA1C A1B , B A'B A'C .

**Proof :**

Since angle < ACA' = 90° so angle < A'CA'B = 90° also , therefore the circumcenter of

triangle CA'CA'B is point K , the middle point of diameter A'CA'B . Fig.2-(2)

Considering angle < A'CA'B = 90° as constant then all circles passing through points C , A'C , A'B have their center on KC.

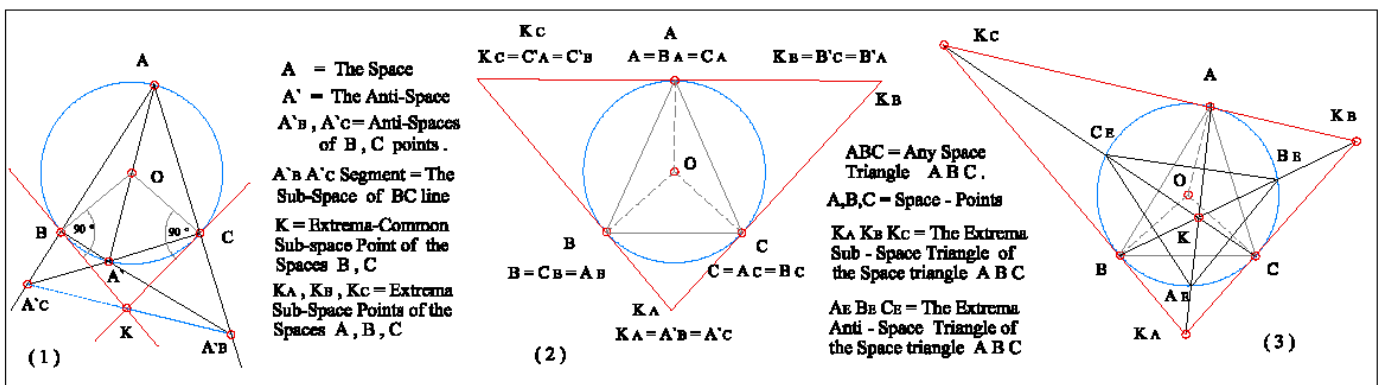
Considering angle < A'CB'A'B = 90° as constant then all circles passing through points B , A'C , A'B have their center on A'CA'B

Considering both angles < A'CB'A'B = A'CA'B = 90° then lines BA'C , CA'B produced meet lines AA'C , AA'B at points A1C , A1B such that line A1C A1B passes through point K

(the common to A1C A1B , A'CA'B segments ) and when angle <BAC = 0 as extrema case then point K , coincides with Anti-space point A' which are both on the circle ,

*i.e. From all contrary cases , In an angle < BAC of triangle ABC exists a constant point K , such that all lines passing through this point intersect sides AB , AC at points A1C , A1B so that internal lines A1C A1B concurrence on the circumcircle of triangle ABC and in Extrema case , angle <BAC = 0 , this point becomes the Anti-point A' where then lies on line AK becoming AK\_A sector .*

*The case of an angle < A equal to 180° is next examined in Fig.3 as the general extrema cases in Plane .*



**Figure.3..** In (1) Concurrency points in and out of any circumcircle of triangle ABC .  
 In (2) The Extrema Concurrency points of vertices of any triangle ABC .  
 In (3) The Extrema Sub-Space and Anti-Space of any Space Plane-triangle ABC.

2.. In Figure .3. Extrema of the circumcircle triangle ABC on its vertices :

a ) In (1), When any point  $A_1$  coincides with point B ( Superposition of points  $A_1, B$  ) then line  $BA_1$  is the tangent at point B, *extrema*, where then angle  $\angle OBK = 90^\circ$ . When any point  $A_1$  coincides with point C, ( Superposition of points  $A_1, C$  ) then line  $CA_1$  becomes the tangent at point C, where then angle  $\angle OCK = 90^\circ$ .

Following the above logic for the three angles  $\widehat{BAC}$ ,  $\widehat{ABC}$ ,  $\widehat{ACB}$ , then,

$K_A B, K_A C$  are tangents at points B and C and angles  $\angle OBK_A = \angle OCK_A = 90^\circ$ .  $K_B C, K_B A$  are tangents at points C and A and angle  $\angle OCK_B = \angle OAK_B = 90^\circ$ .  $K_C A, K_C B$  are tangents at points A and B and angle  $\angle OAK_C = \angle OBK_C = 90^\circ$ . F.3-(2)

Since at points A, B, C of the circumcircle exists only one tangent then,

The sum of angles  $\angle OCK_A + \angle OCK_B = 180^\circ$  therefore points  $K_A, C, K_B$  are on line  $K_A K_B$ .

The sum of angles  $\angle OAK_B + \angle OAK_C = 180^\circ$  therefore points  $K_B, A, K_C$  are on line  $K_B K_C$ .

The sum of angles  $\angle OBK_C + \angle OBK_A = 180^\circ$  therefore points  $K_C, B, K_A$  are on line  $K_A K_C$  i.e.

**The circle ( O, OA = OB = OC ) is inscribed in triangle  $K_A K_B K_C$  and the circumscribed on triangle ABC.**

**In all Plane levels of Euclidean Geometry, the Space points A, B, C, the Anti-Space points  $[A', B', C'] \equiv [A_E, B_E, C_E]$ , and Sub-Space points  $K_A, K_B, K_C$  lie on the Circumscribed circle and Circumscribed to ABC triangle and it is the Extrema of it to its Points.**

**This coexistence of the three Spaces in One is the main property of Spaces, and in this Mechanism Stabilizer is the Work  $\equiv$  Energy as Glue-Bond between them. [58]**

**Theorem :** On any triangle ABC and the circumcircle exists one inscribed triangle  $A_E B_E C_E$  and another one circumscribed **Extrema triangle**  $K_A K_B K_C$  such that the **Six points of intersection of the six pairs of triple lines**

*are collinear*  $\rightarrow (6+6+6) = 18$ . Fig.3 -(3)  
The six-triple points-line [ STPL ] is line  $\rightarrow$  of Points  $D_A, D_B, D_C - P_A, P_B, P_C$  where,  
Triangle **ABC**  $\rightarrow$  is the Space Triangle.  
Triangle  **$A_E B_E C_E$**   $\rightarrow$  is the Anti-Space.  
Triangle  **$K_A K_B K_C$**   $\rightarrow$  is the Sub-Space Plane.

**Proof:** Fig.3. ( 3 ), Fig.4 m

Let ABC be any triangle (The Space), the  $K_A, K_B, K_C$  are the points of intersection of tangents at A, B, C points of circumcircle (The Sub-Space),  $A_E, B_E, C_E$  be the points of intersection of lines  $AK_A, BK_B, CK_C$  and the circumcircle (The Anti-space) respectively.

1.. When points  $A_1, A$  coincide, then internal lines  $CB_1, BC_1$  coincide with sides CA, BA, so line  $K_A A$  is constant. Since point  $A_E$  is on Extrema line  $AK_A$  then lines  $C_E B, B_E C$  concurrent on line  $AK_A$ . The same for tangent lines  $K_A K_B, K_A K_C$  of angle  $\angle K_B K_A K_C$ .

2.. When points  $A_1, B$  coincide, then internal lines  $CA_1, AC_1$  coincide with sides CB, AB, so line  $K_B B$  is constant. Since point  $B_E$  is on Extrema line  $BK_B$  then lines  $A_E C, C_E A$  concurrent on line  $BK_B$ . The same for tangent lines  $K_A K_C, K_B K_C, K_B K_A$  of angle  $\angle K_C K_B K_A$ .

3.. When points  $A_1, C$  coincide, then internal lines  $AA_1, BA_1$  coincide with sides AC, BC, so line  $K_C C$  is constant. Since point  $C_E$  is on Extrema line  $CK_C$  then lines  $B_E A, A_E B$  concurrent on line  $CK_C$ . The same for tangent lines  $K_C K_A, K_C K_B$  of angle  $\angle K_A K_B K_C$ , i.e.

**Triangles ABC,  $A_E B_E C_E, K_A K_B K_C$  are Perspective between them, and consequently between the Spaces.**

Since Triangles ABC,  $A_E B_E C_E$  are Perspective between them, therefore the pairs of Perspective lines  $[AA_E, BC_E, CB_E], [BB_E, CA_E, AC_E], [CC_E, AB_E, BA_E]$  are concurrent in points  $P_A, P_B, P_C$ , respectively.

Since Triangles ABC,  $K_A K_B K_C$  are Perspective between them, therefore the pairs of Perspective lines  $[K_B A, CB, C_E B_E], [K_A B, AC, A_E C_E], [K_B C, BA, B_E A_E]$ , are concurrent in points  $D_A, D_B, D_C$  respectively.

Since lines ( $K_A K_B$ ,  $K_B K_C$ ,  $K_C K_A$ ) are Extrema (tangents to circumcircle) for both triangles  $ABC$  and  $A_E B_E C_E$ , of sides ( $BC$ ,  $B_E C_E$ ), ( $AB$ ,  $A_E B_E$ ), ( $AC$ ,  $A_E C_E$ ), then, the points of intersection of these lines lie on the same line. i.e.

**This compact logic of the points [A, B, C], [A<sub>E</sub>, B<sub>E</sub>, C<sub>E</sub>], [K<sub>A</sub>, K<sub>B</sub>, K<sub>C</sub>] when is applied on the three lines (K<sub>A</sub>K<sub>B</sub>, K<sub>B</sub>K<sub>C</sub>, K<sub>C</sub>K<sub>A</sub>) then the SIX pairs of the corresponding lines which extended are concurrent at points P<sub>A</sub>, P<sub>B</sub>, P<sub>C</sub> for the triple pairs of lines (Pascal's Perspectivity of points in Euclidean geometry), [AA<sub>E</sub>, BB<sub>E</sub>, CC<sub>E</sub>], [BB<sub>E</sub>, CA<sub>E</sub>, AC<sub>E</sub>], [CC<sub>E</sub>, AB<sub>E</sub>, BA<sub>E</sub>] and at Points D<sub>A</sub>, D<sub>B</sub>, D<sub>C</sub> for the triple pairs of lines [K<sub>A</sub>K<sub>B</sub>, AB, A<sub>E</sub>B<sub>E</sub>], [K<sub>A</sub>K<sub>C</sub>, AC, A<sub>E</sub>C<sub>E</sub>] and [K<sub>B</sub>K<sub>C</sub>, BC, B<sub>E</sub>C<sub>E</sub>], (Desargues's Perspectivity of points in Euclidean geometry) and all the 18 common points lie on a straight line the STPL.**

As proved, Straight line AA<sub>E</sub> is continuous in ds, with ds = 0 as points of filling, and also discontinuous (discrete) with the dimensional Units, ds ≠ 0, defining the Space, Anti-space at A, A<sub>E</sub> points and Sub-space at K<sub>A</sub>, where, ds = quantum = AA<sub>E</sub>/n, (where n = 1,2,3 → ∞, = [a+b.i]/n = complex number and Infinitively divisible which is keeping the conservation of Properties at End Points A, A<sub>E</sub>) as filling, and continuous with points as filling (and for n = ∞ then ds = 0 i.e. the ∞ Positions of points in ds). On line AA<sub>E</sub> exists Euler-Savary mechanism for Couple-Curves

### 2.3. Remarks on The Physical meaning of the Geometrical Properties.

The [STPL] Mechanism:

The Geometrical mould on Physical world:

1.. [STPL] is a **Geometrical Mechanism** that produces and composite all opposite Space Points from Spaces (The three characteristic points A-B-C forming a Plane), Anti-Spaces

(The corresponding points A<sub>E</sub>B<sub>E</sub>C<sub>E</sub> of opposite direction through the Zero space) and the Sub-Spaces (The Zero Plane points K<sub>A</sub>, K<sub>B</sub>, K<sub>C</sub> is similar to Positive axis which passes from Zero in order to pass to the Negative axis) in a Common Circle, Sub-Space, line or a cylinder.

2.. Points A,B,C and lines AB,AC,BC of **Space, communicate with** the corresponding A<sub>E</sub>B<sub>E</sub>, A<sub>E</sub>C<sub>E</sub>, B<sub>E</sub>C<sub>E</sub>, of **Anti-Space**, separately or together with bands of three lines at points P<sub>A</sub>, P<sub>B</sub>, P<sub>C</sub>, and with bands of four lines at points D<sub>A</sub>, D<sub>B</sub>, D<sub>C</sub> **on common circumscribed circle (O, OA) the Sub-Space.** [17]

3.. If any monad AB (quaternion or Vector), [s,  $\bar{v} \cdot \nabla i$ ], 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<sub>A</sub> K<sub>B</sub> K<sub>C</sub>, the tangents as extrema is the Subspace, on the two Extreme triangles ABC and A<sub>E</sub>, B<sub>E</sub>, C<sub>E</sub> (of Space Anti-Space) creating 1,3,5, spin, the minimum Energy - Quanta. (this is the How Opposites combine and produce the Neutral). [29]

When the monad (quaternion with real part = s = 2r and Imaginary part  $\bar{v} = \nabla i = \bar{\Lambda} = \Omega = m.v.r$ ) is in the recovery equilibrium

(a surface of a cylinder with 2r diameter),

and because velocity vector is on the circumference, then the two quaternion elements identify with points A,B,C (of the extreme triangles ABC of Space ABC) and Imaginary part with points A<sub>E</sub>, B<sub>E</sub>, C<sub>E</sub> (of the extreme triangles A<sub>E</sub>B<sub>E</sub>C<sub>E</sub> (of Anti-Space), on the same circumference of the prior formulation and are rotated with the same angular velocity vector  $\bar{w} = 2\pi f$ . The inversely directionally is the rotated Energy  $\pm \bar{\Lambda}$  and equilibrium into the common circle, so Spaces and Anti-Spaces meet in this circle which is the common Sub-space. Extreme Spaces (the Extreme triangles ABC) meet Anti-Spaces (the Extreme tangential triangles A<sub>E</sub>B<sub>E</sub>C<sub>E</sub>), through the only Gateway which is the center O of the Plane Geometrical Formulation Mechanism (mould) of the [STPL] line. [43]

Since the origin of Space [S] becomes, through the Principle of Virtual Displacements as,  $W = \int_A^B P ds = 0$  from Primary Point A which is the Space, to A<sub>E</sub> which is the Anti-space as the Inner distance, ds, of Space and Anti-Space in all Layers then, Distance ds = AA<sub>E</sub> is the Work embedded in monads and it is what is vibrated.

Since also Work of the Inner Impulse distance of Space and Anti-Space is embedded in all material

points of universe, stationary points, a Torsional Oscillation  $\bar{\Lambda}$  in STPL mechanism happens and thus a Natural Wave-Frequency  $f_m = \mathbf{w}/2\pi$  is embedded in Material-Geometry, from which exist the Euler-Savary equations with the rotating and Rolling curves, and thus become the figures of Conchoide to Spirals and all the others. [58]

Point, which is nothing and has not any Position may be anywhere in Space, therefore, the Primary point A, being nothing also in no Space, is the only Point and nowhere, i.e. Primary Point is the only Space and from this all the others which have Position, therefore it is the only Space and so to exist point A at a second point B somewhere else, point A must move towards point B, where then  $A \equiv B$ . Point B is the Primary Anti-Space which Equilibrium point A,  $[PNS] = [A \equiv B]$ .

The position of points in [PNS] creates the infinite dipole and all quantum quantities which acquire Potential difference and an Intrinsic moment  $\pm \Lambda$  in the three Spatial dimensions (x, y, z) and on the infinite points of the (i) Layers at these points, which exist from the other Layers of Primary Space, Anti-Space and Sub-Space, and this is because Spaces = monads = quaternion [9]. Again, since Primary point A, is the only Space then on this point exists the Principle of Virtual Displacements as,

$$W = \int_A^B P \cdot ds = 0 \quad \text{or} \quad [ds \cdot (P_A + P_B) = 0],$$

All points may exist with  $P = 0 \rightarrow$  (PNS) and also with  $P \neq 0 \rightarrow$  (Spaces) because,  $(P_A + P_B = 0)$

therefore [PNS] is self-created, and because at each point may exist also with  $P \neq 0$ , then [PNS] is a (perfectly Homogenous, Isotropic and Elastic Medium, in spatial and Temporal domain) Field with infinite points which have a  $\pm$  Charge with  $P = 0 \rightarrow P = \Lambda \rightarrow \infty$ .

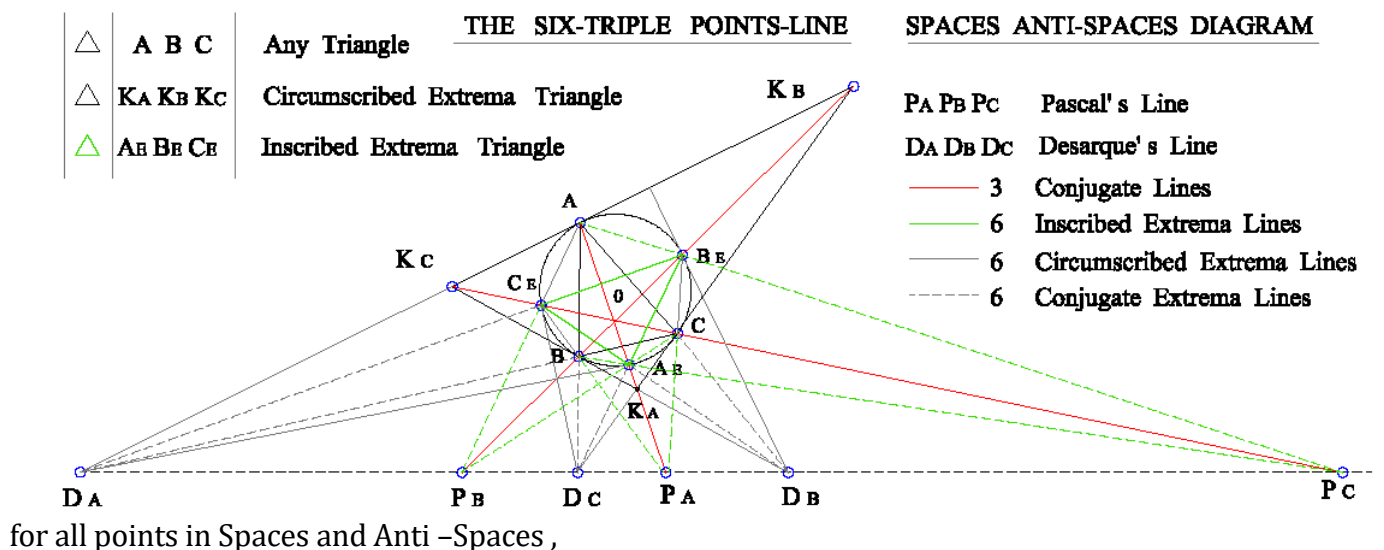
Work (W) is quantized on material-points as EM wave and spin  $\pm(\bar{p})$  and from this equilibrium quantized angular momentum  $\bar{\Lambda}$  independently of time, is capable of forming the Wave nature of Spaces, following the Boolean logic and distorting momentum  $\bar{p} = \bar{\Lambda}$ , as energy, on the intrinsic orientation position of points, on all points of the microscopic and macroscopic homogeneity, and since also in common circle rotational velocity,  $\bar{w}$ , and momentum,  $\bar{\Lambda}$ , are constants, and because of this constant velocity, c, is created, and thus consist a Pure quaternion, which is the cause of their Inner motion, as The Electromagnetic wave which produces Spin, and of their Outer Spin (The screw helically Kinetic Energy wave Motion conjugation).

Conjugation equation of the two gives,

$$\left(\frac{\partial}{\partial t}, \bar{w}\right) \odot (0, \Lambda) = (-\Lambda, \mathbf{w} \times \Lambda) = (-\mathbf{H} \times \mathbf{P}, \nabla \times \Lambda) = [\lambda, \nabla \times \Lambda]. \quad [13-15].$$

### 3.. The Material Geometry and Properties .

All above Geometric logic is simultaneously presented on Space, Anti-space and on the deep relation of the Material-Geometry and Physics, because by Considering  $\rightarrow$  point A as the positive Space =  $\oplus$ , point  $A_E$  as the negative Anti-Space =  $\ominus$ , and point  $K_A$  as the Neutral =  $\emptyset$  then, in Fig.5,



**Figure.4.. The Six, Triple Concurrency Points, Line.** [STPL]  $\rightarrow D_A, D_B, D_C - P_A, P_B, P_C$   
 $[ABC \equiv$  The Space  $], [A_E, B_E, C_E \equiv$  The Anti-Space  $], [K_A, K_B, K_C \equiv$  The Sub-Space  $]$

This Property of links ,constitutes the Instaneous rotation of , Plane Space , Anti-space , [ For point A is the Rotation of Triangles OAD<sub>A</sub> , OA A<sub>E</sub> with velocity ,  $\bar{v}$  , on the circumference of circle (O,OA) ] with Instaneous centers of rotation D<sub>A</sub> , P<sub>A</sub> on STPL Line , where then equilibrium happens on A K<sub>A</sub> straight line . Simultaneously Euler - Savary equation relates three directed quantities lying on the path normal AK<sub>A</sub> and reduces to having K<sub>A</sub>A<sub>E</sub> , K<sub>A</sub>P<sub>A</sub> always laid off in the same sense along the line AK<sub>A</sub>, and also the converse of Positions since inflection circle (O,OA) is the location of couples points whose curves have an infinite radius of curvature as in Figure 5. where angle  $\angle AOA_E = 180^\circ$ . Euler-Savary equation gives the radius and the center of curvature of this coupler curve between the Instaneous Rotation of , Space and Anti-space .

In Figure. 5-6-7 , is shown the Lorentz factor  $\gamma \equiv \sec.\varphi$  , becoming from STPL mechanism and related to All known Particles , following the Conchoide of Nicomedes to COSC . [58]

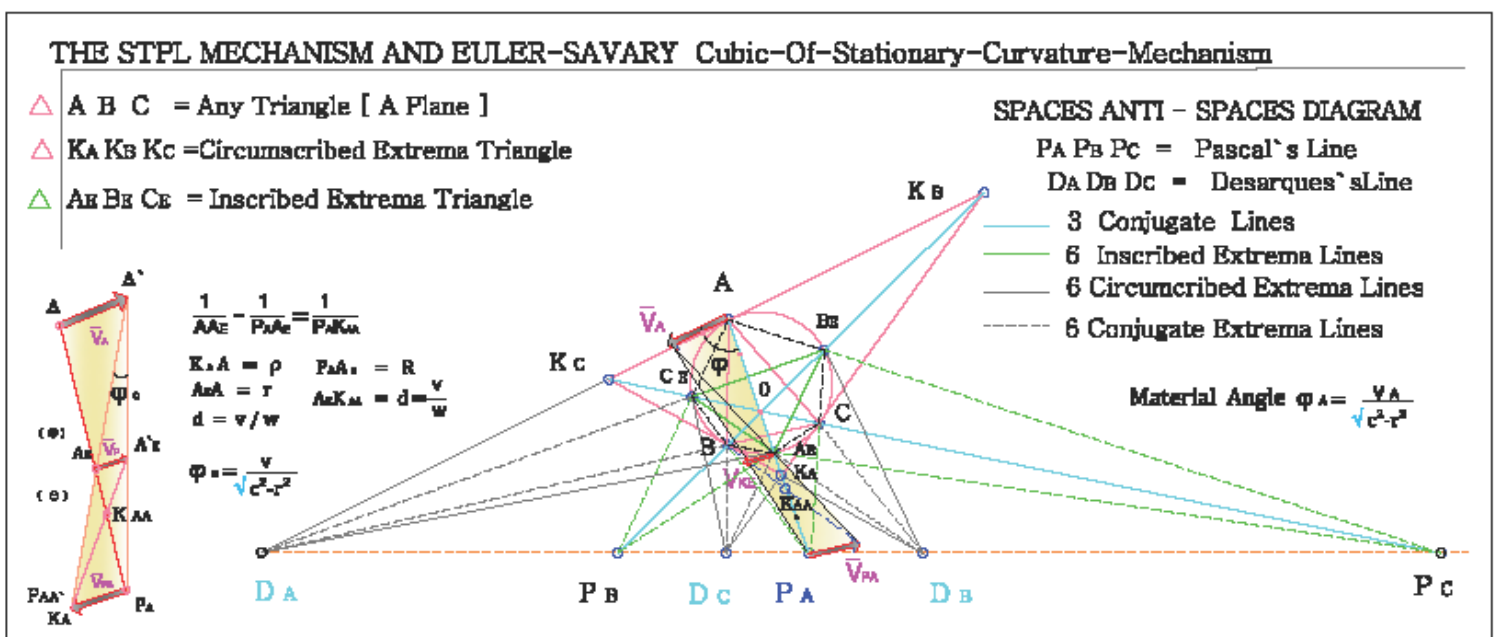
Gravity force is exerted on breakages  $[\pm (\bar{w}.r)^2 = \text{Material points} = \text{Dipole of the two } \pm \text{quantized energy-spaces } (\bar{w}.r)^2]$  as velocity vector ,  $\bar{c}$  , which is then decomposed into two reverse velocities following the cycloidal motion , and consisting the intrinsic Stationary Electro-magnetic Wave of gravity, and which is binding points of this Homogenous- Isotropic, Rest and mass-less nature Field.

The total dispersion Rotating energy of dipoles is  $[\pm \bar{\Lambda}]^2 = [p.c]^2 + [m_o.c^2]^2$ , which is the known relativistic energy- momentum equation of Lorentz transformation equations.

It has been shown [16] that Projective and Perspective geometry are Extrema in Euclidean geometry into [STPL] line , their boundaries becoming from common Space and Anti-space. Energy , Motion, follows this Euclidean moulds, because this Proposition , Principle, belongs to geometry, and not to Energy which is only motion. In [33-36] Un-clashed Fragments through center O, consist the Medium-Field Material-Fragment  $\rightarrow [\pm s^2] = [\text{MFMF}]$  as base for all motions, and Gravity as force  $[\nabla i]$ , while the clashed with the constant velocity ,  $\bar{c}$ , consist the Dark matter  $[\pm \bar{c}.s]$  and the Dark energy  $[\bar{c}.\nabla i]$  , or from  $\rightarrow$  Breakages

$[\pm s^2 = \pm (wr)^2]$  and  $[\nabla i = 2(wr)^2]$  where then become Waves (Distance  $ds=AA_E$  is the Work embedded in monads and it is what is vibrated ) with Vibrating equations of motion as ,

- A  $\rightarrow$  Particles, with Inherent Vibration ,
- B  $\rightarrow$  Gravity-field-energy, without Vibration
- C  $\rightarrow$  Dark-matter-energy constituents as ,
- A..  $[\pm \bar{v}.s^2] \rightarrow$  Fermions and  $[\bar{v}.\nabla i] \rightarrow$  Bosons,
- B..  $[\pm s^2] \rightarrow$  [MFMF] Field, and the binder ,  
Field is  $[\nabla i] \rightarrow$  Gravity force,
- C..  $[\pm \bar{c}.s^2] \rightarrow$  Dark matter , and the binder Gravity force  $[\nabla i]$  ,  $[\bar{c}.\nabla i] \rightarrow$  The Expanding Dark energy.

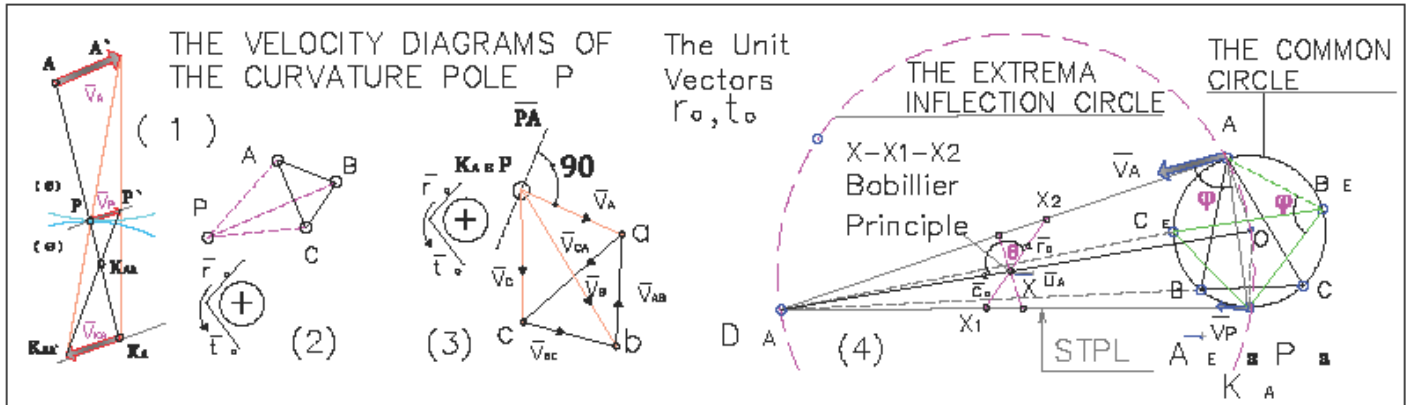


**Figure.5..** ABC is any triangle (The Space),  $K_A K_B K_C$  triangle is the (The Sub-Space),  $A_E B_E C_E$  triangle is (The Anti-space) respectively. The Instantaneous Pole  $P \equiv A_E$  of rotation is off the circle.

Reference System  $\{D_A - P_A\} \equiv [R] (x', y', z', t')$  moves with velocity  $\bar{v}$ , parallel to,  $x-x'$ , axis with respect to the fixed and Absolute System  $\{D_A - O\} \equiv [S] (x, y, z, t)$ .

Space point A moving on (p) curve, and Anti-Space point  $A_E$  moving on ( $\varepsilon$ ) curve are rolling on the same Sub-space circle  $(O, OA) \equiv (O, OA_E)$  which is the cave-common circles of Material Geometry.

**3.1. The Instantaneous Pole  $P \equiv A_E$  of rotation, on the Inflection-circle of Plane  $AD_A A_E$ .**



**Figure.6..** ABC is any triangle (The Space),  $K_A K_B K_C$  triangle is the (Sub-Space),  $A_E B_E C_E$  triangle is the (Anti-space) respectively. The Instantaneous Pole  $P$  of rotation coincides with Anti-space point  $A_E$  on the circumscribed to ABC Circle.

The Velocity diagrams for the Instantaneous Pole  $P$  of rotation, on the inflection circle of the Plane points A, B, C.

- In (1) point  $K_{AA}$  is the velocity instantaneous center for point A in  $S_0$  system.
- In (2) point  $P$  is the Pole of rotation for points A, B, C.
- In (3) Figure is the Velocity Diagram P-a, b, c for points A, B, C
- In (4) When STPL is Tangential to  $(O, OA)$  then the two circles, *The common-circle and Inflection circle*, cut on AP chord which is common to Velocities, and the Accelerations of points A, P, coincide with  $P_A, D_A$  Pascal's and Desargues points. On  $AD_A A_E$ , Material lines  $X_1 X X_2$ , formulate all referred curves. [58]

**3.2. The Angular Momentum of any Material point.**

From Physics momentum  $p = m \cdot v = m \frac{ds}{dt} \dots(1)$  where  $\rightarrow$  mass = the reaction to the change of velocity  $\rightarrow |v|$  = the instant velocity equal to  $ds/dt$  which is the change of displacement  $ds$ . [40-41]

Angular Momentum  $L = l \times p = |l| \cdot |p| \cdot \sin\varphi \dots(2)$  where  $\varphi$  = Angle subtended between direction of  $l$  and  $p$ .

$l$  = a position vector. Differentiating (2) then

$$\frac{dL}{dt} = \frac{dl}{dt} \times p + l \times \frac{dp}{dt} = v \times p + l \times F = \frac{p \times p}{m} + l \times F = 0/m + l \times F = l \times F \dots(3), \text{ since } \mathbf{p} = \mathbf{m} \times \mathbf{v},$$

and which is a Torque acting on the particle

about its axis through  $l$ , or  $\frac{dL}{dt} = l \times F \rightarrow$  is a Torque, i.e. **It is the Linear momentum.**

**Remark :**  $\frac{dL}{dt} = l \times F = \text{Torque} \rightarrow$  which suggests that, equation (3) is the **Extrema case between, the Linear and Angular Momentum**, where then for instantaneous velocity  $v = w \cdot r$  then  $L = m(w \cdot r) \cdot l$  i.e. Angular momentum is equal to the followings  $\rightarrow$

- 1.. The reaction,  $m$ , of the change of position vector  $l$ , through material point axis.
- 2.. The Intrinsic angular velocity,  $w$ , of the material Point.
- 3.. The circular orbit of radius,  $r$ , of the material point.
- 4.. The length  $|l|$  of the position vector which is the wavelength  $\lambda = 4\pi \cdot r$  of the material point.

Since any Monad, (Unit)  $\overrightarrow{AB} = L$ , is the ENTITY and  $[A, B - P_A, P_B]$  is the LAW, so Entities are embodied with the Laws.

Since Entity is quaternion  $\overrightarrow{AB}$ , and law  $|AB| = \text{length} = \text{the Real part which is Space of points } A, B \text{ then imaginary part (i) are the forces } P_A, P_B \text{ or the fields in } AB$ .

By definition  $i = \sqrt{-m.1}$  and  $(-m1)^2 = -1m$  i.e.  $[\text{Energy}]^2 = - [\text{Space}] = \text{Anti-space}$  and since also exists  $\Lambda \times \Lambda = - (-m.1)^2 = \pm \Lambda. \nabla i$ , the basic equation of quaternion becomes  $[-(\Lambda \times \Lambda)/m \pm \Lambda \times \nabla i] = [\lambda, \pm \Lambda \times \nabla i]$

i.e. wavelength  $\lambda = - (\Lambda \times \Lambda)/m$  where  $m = \text{a constant depending on the reactions to the present or other conditions}$ .

Applying this in energy cavities then  $\lambda =$

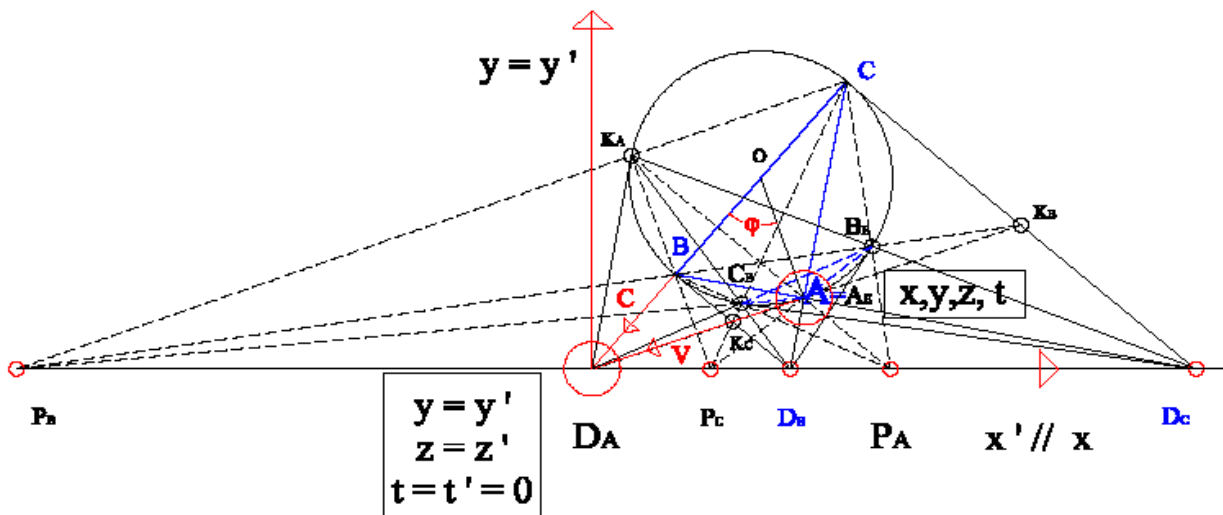
$$= e^{-i[(\frac{\pi}{2})b]^2} = e^{-i[(\frac{2\pi}{2}).b]} = e^{-i[(\pi).b]} \rightarrow \text{i.e.}$$

The Massive mechanism Diffraction and the Energy mechanism Diffraction, *The Quanta*, are Interchangeable as,  $e^{-i.(1.78.10^{-7})^2} = e^{-i.(3.56.10^{-14})}$  and for Relativity massive Energy  $(\Lambda \times \Lambda) = (-m.i) \times (-m.i) = m(i)^2 = -m.(i)^2 = -m.\bar{v}^2$ , where imaginary part,  $i = \bar{v}$ , i.e.

**The Space acquires energy as velocity.**

Applying quaternion equation  $[-\nabla \Lambda, \nabla \times \Lambda] = 0$  for point ,O, and constant velocity , $\bar{c}$ , then  $[-\nabla c, \nabla \times c] = 0$  where  $[-\nabla c] \perp [\nabla \times c]$  meaning that it is a mechanism that instantly transports the breakage masses in two directions dynamically and perpendicular to all Inertial frames Layers .[26]

**3.3. The Absolute and Relative Motion .**



**Figure.7..** ABC is any Right-angled triangle at A (The Space),  $K_A K_B K_C$  triangle is the (Sub-Space),  $A_E B_E C_E$  triangle is the (Anti-space) respectively. The Instantaneous 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  $\{D_A - P_A\} \equiv [R] (x', y', z', t')$  moves with velocity , $\bar{v}$ , parallel to ,  $x-x'$ , axis with respect to the fixed and Absolute System  $\{D_A - O\} \equiv [S] (x, y, z, t)$ .

The Geometrical expression of Lorentz factor , $\gamma$ , is as  **$\sec \varphi = \gamma = OD_A : AD_A = \pm 1 / [\sqrt{1 - (v/c)^2}]$**  and which is the Conchoide of Nicomedes,  $\{s = a + b. \sec \varphi\}$ , and which has the material Angle  $\varphi = \frac{v}{\sqrt{c^2 - v^2}}$

**The Relative Motion**

Because Properties In and On [STPL] line , are relative to the only one Equilibrium and Absolute system  $\pm \Lambda = r.m\bar{v} = r.m.\bar{w}.r = mr^2.\bar{w}$ , so exists that what is called Relativity. As Absolute System let it be  $[S] \equiv \{D_A - O\}$  and as the Relative (Reference, Affine) System,  $[R] \equiv \{D_A - P_A\}$ . Fig- 7

The Relative motion  $[S] \equiv \{D_A - O\}$ ,  $[R] \equiv \{D_A - P_A\}$  of the two above Systems :

It was shown , that in  $\{D_A - O\}, (x, y, z, t)$ , System  $\bar{c}, \bar{v}$ , vectors are isochrones i.e. period  $T = L/V = 2\pi R/V = 2\pi/[c/r_c] = 2\pi/[v/r_v] \rightarrow c/r_c = v/r_v \rightarrow c.r_v = v.r_c$ , where  $r_v, r_c$  are the radius of their intrinsic rolling circles . In F-7 , this relation is Geometrically expressed as  $\rightarrow$

$\sec \phi = \frac{0}{D_A} : A \ D_A = \gamma = \pm \frac{1}{\sqrt{1-(v/c)^2}} = c / [\sqrt{c^2 - v^2}]$ , and it is a geometrical Cycloid property equal to Lorentz's  $\gamma$  factor. Newton's laws are true into Reference System  $[R] \equiv \{D_A-P_A\}$  by,

Considering  $\{D_A-O\}, (x,y,z, t)$ , as the fixed frame  $[S]$  of the coordinate system in the Gravity cave ( $d=2r$ ) and point  $A(x,y,z)$  is fixed on circle  $(O,OA)$  and is rotating with a velocity  $\bar{v} = \bar{w}r$  and of angular velocity  $\bar{w} = 2\pi/T = 2\pi f$  where period of rotation,  $T$ , is constant also.

Since acceleration for a quaternion  $z = (s + \bar{v} \cdot \nabla i)$  is  $a = [d^2z/dt^2] = (ds/dt \cdot \bar{v} \cdot \nabla i) + s \cdot d(\bar{v} \cdot \nabla i)/dt = 0 + s \cdot d(\bar{w}r)/dt = 0 + 0$ , and this because  $\bar{w} = \text{constant for both}$ , therefore, velocity  $\bar{v} = \text{constant also}$ , i.e.  $\rightarrow$

**Centrifugal velocity of Absolute system  $[S]$  is any constant,  $\bar{c}$ , and this because angular velocity,  $\bar{w}$ , is constant also, thus, is not needed to accept apriori this constancy of velocity  $\bar{c} = 0 \rightarrow \bar{v} \rightarrow \infty$  on circle  $(O,OA)$  to exist in frame, so**

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

**This is the why conversion factor,  $t = \text{time}$ , has not any essence in all universe, but it is a meter of changes only.**

Because  $[STPL]$  line of the fixed frame is becoming from this system  $[S]$ , then this relative frame  $[R]$  is common to the fixed one (common  $D_A$ ) and let it be  $[R](x',y',z', t')$ .

From figure Fig-7,  $\sin \phi = (\bar{v}/\bar{c})$  meaning that the Relative system,  $[R](x',y',z', t')$ , (the Affine Frame) is the projection of Absolute Frame  $[S] \equiv \{D_A-O\} - (x,y,z, t)$  where exists as Simultaneity for all motions, i.e.

$$[R] \equiv \{D_A-A\} \equiv [(x',y',z', t')],$$

$$[S] \equiv \{D_A-O\} \equiv (x,y,z, t) = [R] \cdot \gamma \equiv (x',y',z', t')$$

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  $D_A (x', y'=y, z' = z, t')$  respectively.

This specific state of constancy, i.e., the Centrifugal velocity of Absolute system  $[S]$  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 occupy the same meter of their changes, (i.e. the Time).

Since also points  $O,A$  remove to point  $D_A$  isochrones by their intrinsic property motion, which is  $\rightarrow$  their wavelengths are a Stationary wave in cycloid  $\leftarrow$  following Lorentz's factor,  $\gamma$ , then this following, happens also to all frames which make this motion, and so issues  $\{D_A-O\} = \gamma \cdot \{D_A-A\} \dots\dots(2-0)$

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  $\bar{v} = \bar{w} \cdot r$  of the  $[S]$  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 is shown. [39]

Remarks :

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

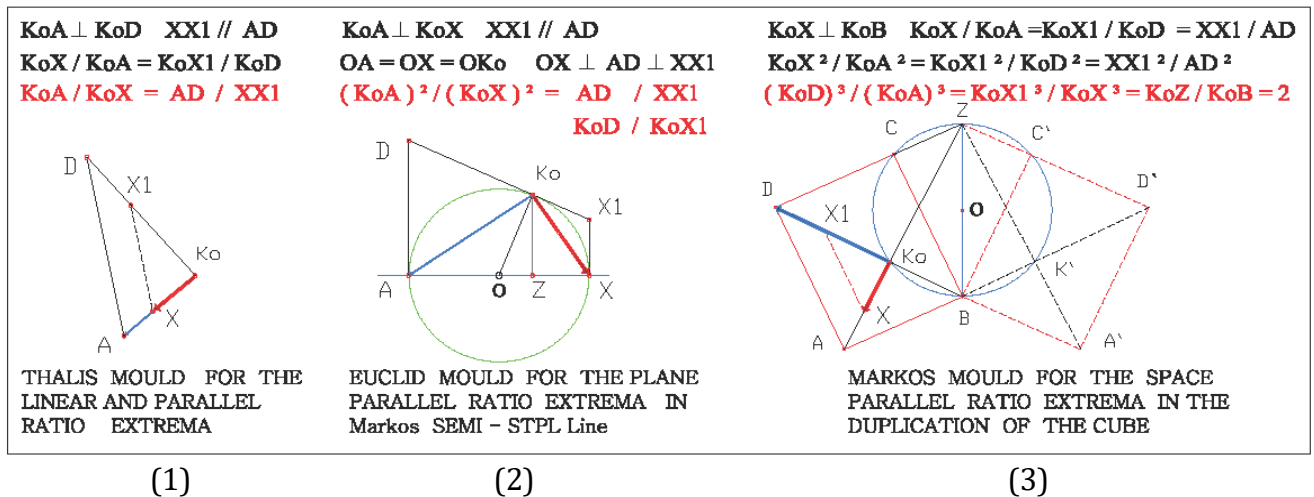
Inversely, by using (2a), where  $[S] \equiv \{D_A-A\} \equiv \{D_A-O\} / \gamma$ , then if Material point  $A$  of the Fixed System  $\{D_A-O\}$  travels with velocity  $\bar{v}$  at point  $D_A$ , the geometrical distance  $A \cdot D_A$  in the Fixed System  $[S] \equiv \{D_A-O\}$  is  $\rightarrow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

### 3.4. The Quantization of E-Geometry and its moulds.

It was shown in [58] that common-circle of radius,  $r_c$ , is the common source of vibration excitation for the Space, Anti-space, considered as rotating with constant angular velocity  $\bar{w}$ . **This vibration is the configuration of Conchoide of Nicomedes which is connecting the Glue-bond of the Spaces, and Generally the changes on axis, from Instantaneous rotation of the Plane Space, Anti-space  $AA_E$  in STPL**



### 3.4. The Quantization Meter - Moulds .



**Figure.8..** The *Thales, Euclid, Markos Mould*, for the **Linear - Plane - Space** ,  
*Extrema Ratio, Meters.*

In (1) is the Linear - Ratio where, length  $K_oA$  analogous to monad  $K_oX$  is equal to  $AD / XX1$  following the Euclid's parallels.

In (2) is the Squared - Ratio where, length  $K_oA$  squared to monad  $K_oX$  squared is equal to linear ratio  $AD / XX1$  following the Euclid's parallels.

In (3) is the Cube - Ratio where, length  $K_oA$  cub to monad  $K_oX$  cube is equal to linear ratio  $K_oZ / K_oB$  following the Euclid's parallels.

**Quantization of E-geometry** is the way of Points to become, *discrete*, as  $\rightarrow$  ( Segments, Anti-segments = Monads, Anti-monads), ( Segments, Parallel-segments = Equal monads), ( Equal Segments and Perpendicular-segments  $\equiv$  Plane Vectors), ( Un-equal Segments twice-Perpendicular-segments  $\equiv$  The Space Vectors = Quaternion ). [15]

Monads and Segments being quaternion occupy Massive and Energy magnitudes called Meters . Since points A, B, C (of the extreme triangles ABC which denote the Space ABC) are in the recovery equilibrium with points  $A_E, B_E, C_E$ , ( of the extreme triangles  $A_E B_E C_E$  which denote the Anti-Space ) and meet also in the same common circle which is the Common Sub-space, therefore Energy between the two Spaces passes through Sub-space from Extreme Spaces ( Extreme triangles ABC and Extrema Anti-triangle  $A_E B_E C_E$  in the Sub-triangle  $K_A K_B K_C$  meet in this circle which is the common to all spaces .

i.e. common-circle of radius,  $r_c$ , is the common source of vibration excitation for the Space, Anti-space, considered as rotating with constant angular velocity,  $\omega$ .

Since Space, Anti-space are on the same circle then their relative motion is the, Rolling of Space ABC on Anti-space  $A_E B_E C_E$  and since also this relative motion is applied on STPL line, then  $D_A, P_A$ , points are the corresponding linear links of vibrations and Poles of rotation . [58]

### 3.5. The Deduction of Projective- Geometry And Perspectivity in E-Geometry and further in Material-Geometry

Perspectivity and Projectivity of Points :

A.. For One point A perspective point A', lie on the straight line AA' which Coincides to axis PP' of Perspectivity .Since any Anti-point A<sub>E</sub> on Line PP' lies also on the circle of radius AA', and since points P, P' lie on the same circle therefore points A', P', A<sub>E</sub> coincide with PP' Axis of Perspectivity as in Fig1-(1).

B.. For Two points A,B perspective points A',B', lie on the straight line A'B' which is Parallel to axis PP' of Perspectivity . On Line PP' lie the Anti-points A<sub>E</sub>, B<sub>E</sub> which is the diameter AOB of the circle, and whose points P, P' lie on the circle . The Infinite Axis PP' of Perspectivity are Coinciding to Perspective lines of points A',B' and are also Symmetrical to the center O as in Fig1-(3).

C.. For Three points A,B,C not coinciding, perspective points A',B',C' lie on the straight line A'B'C' which is Parallel to axis PP' of Perspectivity . On Line PP' lie the Anti-points A<sub>E</sub>, B<sub>E</sub>, C<sub>E</sub>, which line PP' is Symmetrical to center O of the circumscribed to ABC triangle circle, and whose points P, P' lie on the circle . The Infinite Axis PP' of Perspectivity are Parallel to Perspective lines of points A',B',C' and also Symmetrical to center O as in Fig1-(3).

From above is seen that both Perspectivity and Projective - geometry are incorporated in Euclidean geometry and this because of the Anti-points of Material geometry .

**Because of the Material Geometry consistent Systems of the - Non - Euclidean geometries - have to decide the direction of the existing mathematical logic.**

#### 4.. Epilogues .

**The origin of Space** [S] becomes, through the Principle of Virtual Displacements  $W = \int_A^B \mathbf{P} \cdot d\mathbf{s} = 0$ , from Primary Point A which is the Space, to point B which is the Anti-space as the Inner distance of Space and Anti-Space in all Layers becoming as shown from STPL Mechanism .

**The origin of Energy** becomes, through the same Principle because are co-related and is the Work executed by the displacement, ds, which is conserved and never vanishes .

This means that Universe is Energy-Space and nothing else, which follows the Glue-Bond -

Principle in all Positions and Layers .

**The Torsional oscillation** of Caves ( cleft, slit ) w, is transformed as inner Wave-frequencies which in turn, to monads and moving Particles transforming Inward-Spin to the Outward-Spin and motion . All above are produced in STPL .

**Energy produced** by Reference System {D<sub>A</sub>- P<sub>A</sub>}≡[R] (x',y',z', t') moves with velocity  $\bar{v}$ , parallel to, x-x', axis with respect to the fixed and Absolute System {D<sub>A</sub>- O} ≡ [S](x,y,z, t) and is conserved .

**Energy of the whole universe** is defined as a whole, all at once, and not, the Energy of different pieces. It was referred that Energy in Gravitational - Field is Torsional and Negative and always attractive .

**In General-Relativity** is referred that Space time is giving energy to matter or absorbed it from matter, and thus the Total energy is not conserved . Here are not clarified the three Basic Quantities, **Energy, Matter and Time** . The Argument < Energy is not conserved but it changes because Spacetime does >

**is the great-confusion for these magnitudes** . In [31-36] and [39] was clarified that →

1) Because of Zero acceleration of rotational velocity  $\bar{w}$ , velocity  $\bar{v}$  is constant, so thus GR failed **to explain the WHY speed of light is constant**, considering constancy of light as an axiom from which derived the rest of its theory .

2) For reality of discrete monads, GR failed **to explain the WHY → Wave nature, is the Intrinsic Electromagnetic Wave of Particles** and speed of light is constant in a Stress-Strain System with ( Red-shift, as low f and-Blue-shift, as high f ) Photon to be as Particle and Wave also, but considering constancy of light as an axiom deriving theory .

Here is referred that, Since the mass is equal to  $\mathbf{m} = \frac{2}{c^2} (wr)^3 = \frac{h \cdot w}{2\pi \cdot c^2}$ , analogous to energy w, → then **it is a factor measuring energy**,

3) GR, by Appealing space-time a Priori is **accepting the two elements, Space and Time, as the fundamental elements of universe** without any proof for it, and so anybody can say that this **Stay on air** .

It has been proofed [22-26] that any space AB is composed of points A,B which are nothing and

equilibrium by the opposite forces  $P\vec{A} = -P\vec{B}$  *or the Nature* .  
following *Principle of Virtual Displacement*.

4) GR by Presenting Time as element of universe **could not perceive that, Time (t) is the conversion factor** between the conventional units (second) and length units (meter) , and by considering the moving monads (particles etc. in space) at the speed of light pass also through Time ,this is an widely agreeable illusion . It was proved that Time is a meter , **A number** , measuring the alterations of Space concerning velocity .

5) GR by Presenting Space-Time universe **Becoming from Big Bang** is accepting Infinite priors. Euler-Savary equation of couple-curves is related to the Tangential and angular velocity from ( Space , Path , Anti-space , Evolute ) and is **The Rolling-Glue-Bond of Space , Anti-space** , and which happens on STPL instaneous center of curvature .

6) The Energy - Space Genesis Mechanism : Everything in this cosmos , is Done or Becomes , from a Mould where ,

**In Geometry** Mould is the Monad , the discrete continuity AB ,

**In Mechanics-Physics** Mould is the Recent Acquisition of Material-Geometry where , Material-point =The discrete continuity  $|\oplus+\ominus| = \text{The Quantum}$  ,

**In Plane** Mould is number  $\pi$ , becoming from the Squaring of the circle ,

**In the Space** ,volume, Mould is the number  $^3\sqrt{2}$  becoming from the Duplication of the Cube

**[STPL] Geometrical Mechanism** , is itself the Mould which produces and composite all opposite Spaces and Anti-spaces Points , to Material-points which are the three Breakages  $\{[s^2 = \pm(\bar{w}.r)^2, [\nabla i] = 2(wr)^2\}$  of [MFMF] Gravity , under thrust  $\bar{v} = \bar{c}$  } , where become **Fermions**  $\rightarrow [\pm\bar{v}.s^2]$  and **Bosons**  $\rightarrow [\bar{v}.\nabla i = [\bar{v}.2(\bar{w}.r)^2] = [\bar{v}.2s^2]$  .

**Big Bang and GR** was the temporary solution to the weakness of what men-kind had to answer . Nature cannot be described through infinite concepts , as this can happen in Algebra and values , because are devoid of any meaning in our Objective - Reality , or the Physical world ,

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Material Geometry is the Science and the Quantization-Quality of this Cosmos which joints the , infinite dimensionless and the meaningless Points , *which have only Position* , with those of Nature which are *Qualitative the, Positive - Negative - Zero Points and which have, Positions , infinite Directions and Magnitudes with infinite meanings* , which through the Physical laws are the language of them in itself . The Work , *as Energy* , is the Essence of this deep connection of Material-Points , *The Space* , and through the Conservation-laws is making the Material-Geometry from STPL mechanism . Extension of the Material - Geometry to the chemical-sector gives the possibility for new materials in a drained way of thinking .

In summary, my personal confidence is that nature is produced from Euclidean Geometry moulds as Space only, by following the Principle of Virtual work , and not any other logical starting point.

The essential difference between Euclidean and the non-Euclidean geometries has been attentive in the very specially written article [32] for the nature of the parallel lines, a unique Postulate directly connected to the physical world . Now, [STPL] line (doubled cylinder in spatial CS) is the creation Mould for Particles, *Quanta*, which are created between all the Space-Levels and which Spaces are directly connected . [58]

Particles and Forces consist the monads *i.e.*

The Vibrations caused by the varying lever arms , *the varying lengths between Cycloid and Anti - cycloid of inner structures of monads* , and which cause the Inner Electromagnetic waves and Spin of Energy caves create motion . Inner Spin and EM wave is transformed to the Outer Electromagnetic Wave of Particles as this is in Photon .Their Inner Electric and Magnetic forces are related to gravity`s forces , and thus unify all physics . Moreover , the articles concerning the Ancient and Special unsolved till yesterday Greek problems of E-geometry argue , and defense on all the above referred . [44-49]-[52]

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by Markos Georgallides.

**Markos Georgallides** comes from Cyprus and currently resides in the city of Larnaca, after being expelled from his home town Famagusta by the Barbaric Turks in August 1974. He works as a consultant civil and architect engineer having his own business. He is also the author of numerous scholarly articles focusing on Euclidean Geometry and mathematical to physics related subjects. He obtained his degree from the Athens, National Technical, Polytechnic University [NATUA] and subsequently studied in Germany, Math theory of Photoelasticity.