THEORY OF EVERYTHING
Code Unlocked
MATHEMATICAL MODEL

'We live inside an equation'

Salahdin Daouairi
Program Director of Mathematical Contests, New York, NY
olympicsmath@gmail.com
9/24/2013

Abstract: This discrete mathematical dynamical model for the theory of everything is based on a coded numerical equation that I unlocked. This numerical model puzzle which is the key to understanding the universe is beyond physics for interpreting physical laws of the universe. The equation will uncover the hidden secret of time, its dimension and how it is generated, the multi-verse, its shape and dimension, fabric of space, its properties, dark energy, dark matter, black holes, electromagnetism and gravity. It will describe the vortex ring model for the dynamics of the particles and the space/time, and will prove how the system: S= {Space/Time/Matter/Energy/Gravity/Electromagnetism} is homogeneous, connected and unified; therefore it will explain large important properties of the universe. This mathematical model is an application to the super-string theory "strings and loops" and quantum gravity to explain the phenomena of quantum entanglement. The system is based in a discrete quantum space with the concept of spinors and modular representation" Galois" through the theory of harmonic oscillator with the asymmetry properties to describe the system's phase transformation. By introducing the notion of spin related to the Hadamard operator known for its application in error correcting codes and quantum entanglement, integrated with Lie Algebra embedded with Clifford graded Z2-Algebra for a non-commutative algebra to explain how gauge symmetry works and to describe the quantum circuit for the bosonic and fermionic fields. Some important properties in the algorithm of strings, simplex theory, knot theory, graph theory, and computer algorithms were also introduced to use in this discrete model to describe the system. The equation will divulge the hidden code in Pascal's triangle which is the resource and the base of everything.

Introduction

The Universe and the Concept of the Discrete Numbers:

The universe! One of the deepest questions: how the universe was created and how was the system S= {*Space/Time/Matter/Energy/Gravity/Electromagnetism*} connected and unified? What's the geometric shape of the universe? Is there more than one universe? What generates time? What are dynamic of the space/time? What's the dimension of time? What's the shape of the fabric of space? What generates gravity? What's a singularity? What caused the Big Bang? What are the dynamics and structure of a particle? What are dark energy and dark matter? What are black holes and wormholes? How is the speed of light defined? What are the properties of electromagnetism? How biological systems function? Do we live in a simulated universe?

The answer is that the architecture of the universe and its quantum structure including biological systems from cells, chromosomes, genes and DNA, which is a system inside a system; are all based on the concept of discrete numbers and their structure, that develop from a simple form into a complex form (Fractal). To understand the system we need to have a deep understanding of the parameters: numbers! Numbers are absolute abstract elements independent from space and time that function to define abstract and concrete things. To understand the behavior and dynamics of the system we need to analyze the number's symmetrical concept, its flow, decompositions and its combinations. Each number is defined with its algebraic, analytic and geometric identity. Numbers have a solid fundamental foundation and are considered as the primary mathematical and automata language of the universe and its atomics structure.

In this paper, I will be introducing string theory from defining discrete numbers by "strings / loops" to determine the "Equation of Strings" and I will be also defining it by spheres, due to the importance of packing spheres, that have many important properties in number theory and quantum gravity which I will be using in this mathematical model.

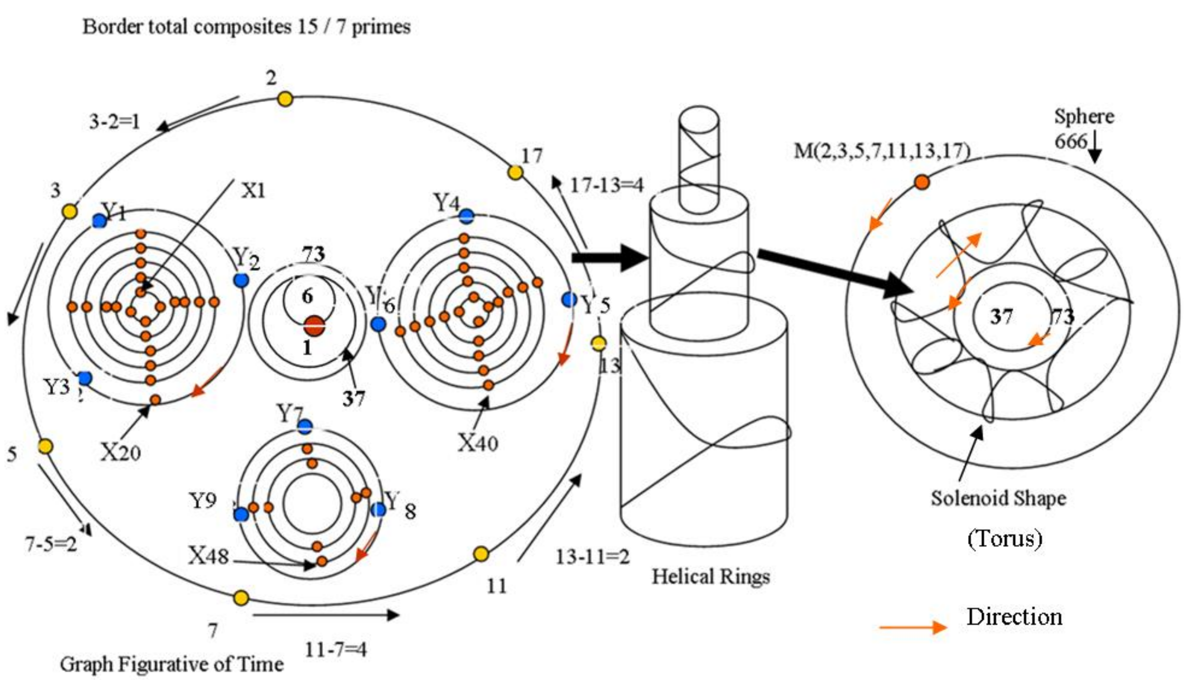
Equation of Everything:

There exists a "tiny", concise equation, as most scientists have predicted, which will connect all physical laws of the universe, from quantum physics to general relativity. This mathematical numerical puzzle model is the key to understanding the universe and reaches beyond traditional physics when attempting to explain the physical law of the universe.. The equation will answer all unknown physical, biological, philosophical and spiritual questions! As a result, it will unlock the true nature of the universe, correct most fundamental theories of physics and will finally disclose the hidden bridge between quantum physics (which relies on electromagnetism) and the general relativity which defines the macro system$\{space/time/gravity\}$. This powerful equation also provides the answers to some of the most mysterious questions that have ever been found: What is the nature of "Time"? How does it function? What are its properties**?** Time is not only related to the duration of an event (a component of measurement), but it is also an absolute element generated from electromagnetism and gravity. Time is the super-partner of the space in SUSY. Space and Time are components of the universe, with the asymmetry properties, while the asymmetry properties of a particle and its super-partner are important to define the phenomena of quantum entanglement in higher dimension.

Equation Generality / Chimotionumber:

To begin, I will be providing a step by step, detailed explanation that will outline the methods that were utilized to construct and prove my conjecture/equation. In this Theory I used simple

known mathematical concepts and formulations to study my numerical system.
The Equation will explain the most important physical properties of the universe related to the system: S= {*Space/Time/Matter/Energy/Gravity/Electromagnetism*}
The "Salahdin Daouairi Equation" is generated from a code that I discovered and developed into the "Theory of Everything". This theory will disclose the nature of the universe through the dynamics of "discrete numbers". This mathematical super-algebraic model is an application that decodes the asymmetric property of the universe, using an original numerical method "**Chimotionumber".** The method will describe the number's chemistry, its decomposition and its motion or "flow". The equation of strings is determined from the entanglement mechanism defined by discrete numbers "integers", while gravity and electromagnetism are the consequence of that mechanism of entanglement. Although, we know the theory of quantum physics is based in discrete system. The discrete system is homogeneous, less abstract; simple and allows us to avoid the complexity of mathematical theory from a "continuous systems" method. Therefore the system consists of using "spin representation" known as the transformer or generator in the super-symmetry for its methods of computing, in contrast to tensors that are used in symmetry, for example: the theory of gravity is a theory of symmetry. The equation will show us mathematically that Time results from the dynamics or configuration of the composites, primes and palindrome numbers (the axis), from an arithmetical progression through the triangular sequences, where the circle unity or the phase transformation $U(1)$ represents the timer / counter for the Space/Time, that generates electromagnetism, while the dynamical of the multi-verse "represented by a string of superposed universes with the property of entanglement" describes a spiral of Fibonacci that induces the gravity through harmonic motion. Thus the whole system is based from Pascal's Triangle with chiral or parity symmetry through a harmonic motion.
Physically time results from the electromagnetic wave traveling along a solenoid, through a symmetrical group transformation or phase transformation $U(1)$ generated by the gravity that describes a cyclic transformation "$gravity \leftrightarrows electromagnetism$"
Graph Figurative of Time (Fig.1)



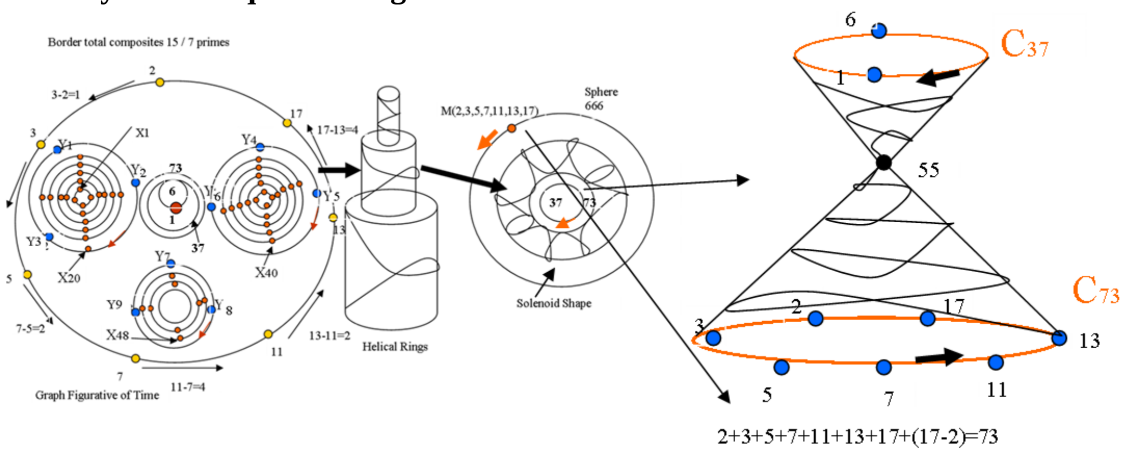
Salahdin Daouairi's Equation for the "Theory of Everything" is defined as:

Giving a set $M_{99} = \{1, 2, 3 \ldots, 99\}$ *bounded by an hyperSphere* S_{r^2} and a set of points $(\rho_1, \rho_2, \rho_3, \rho_4, \rho_5, \rho_6, \rho_7)$ in $\mathbb{R}^7$satisfying:

$$\sum_{i=1}^{7} \rho_i^2 = r^2$$

Let's denote by r the Salahdin Daouairi's radius of the hyper-sphere S_{r^2} , with $r^2 = 666$.
Such that: $2 \leq \rho_i < [r] - 6$ And ρ_i *consecutive primes*.
Then a fortiori the dynamical system of M_{99} and S_{r^2} defines the equation of everything.

Summary of this Equation: Fig.1A



Note: X_i represent composites/composites (Number / mirror image), Y_i palindromes, and circles represent primes/primes, while composites/primes are packed a long The primes 2,3,5,7,11,13,17 (Packing spheres). This form of style rappels the electron/shell configuration. We will explain later this type of composites configuration.

Mathematically:

We will be studying through an asymmetric transformation (Helix) the dynamical system of a finite set of discrete numbers considered as 'spinors', mathematical entities to define the quantum space and its circuit. These entities represent the vertices of a lattice $x_{1\times1}, \ldots\ldots, x_{n\times n}$ which corresponds to the set $M_{99} = \{1,2,3 \ldots.,99\}$. The dynamical of those vertices will describe circles through an oscillation harmonic and will map a hyper-sphereS_{666} with a radius $R^2 = 666$ through the point M (2, 3, 5, 7, 11, 13, 17), while 2, 3, 5, 7, 11, 13, 17 are elements of the lattice. The dynamical of the lattice will be describing a torus which is bounded by the hyper-sphere. The whole system will be evaluated upon singularity and its periodicity through modular representations.

Note: in this method of computation, I will not use *the value* π, since I have a transformation that maps circles (Area) into a sphere, I will be then computing only discrete numbers.

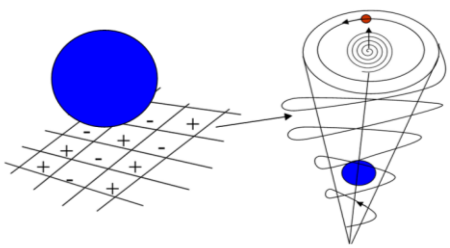
Physically:

The interpretation can be seen a priori from a lattice field theory (Grid composed with cells and charged +/-), that interchange information with a phenomena of creation and annihilation +/_ . The dynamical of the particle charged + or - describe a cyclical helical electromagnetic wave a long a solenoid, through an asymmetrical transformation, that transports matter and energy. What we will be showing are:

- Existence of multi-verse charged +/- :
  Interaction through electromagnetism creates the dynamical of the multi-verse
" concept of entanglement", while the dynamical of the multi-verse induces the gravity
- Particles charged +/_ :
  Vibrate and interact through electromagnetism and describe a vortex ring. This mechanism is induced by the gravity through the dynamical of the multi-verse.
- Formation of the fabric of space which is considered as a woven quantum space network, generated from electromagnetic field and the dynamical of the multi-verse, while holes in the fabric result from the gravity. (Holes are not ruptured but result from rotation of the lattice)

The idea of big mass lies and deforms the fabric of the space is incorrect! There is no contact between the fabric and the big mass, but the mechanism yields to create electromagnetic field between them. However the formulation still correct due to the curvature created by the electromagnetic / gravity fields that wrap the object. Gravity exists for big or small object; we cannot say a tiny object deforms the fabric of the space to attract another smaller object to it?
A priori the fabric of the space encompasses and curls around any charged mass by creating a flux cone of electromagnetic field, while the phenomena of gravity results from the dynamical and the rotation of the flux cone (fabric of space).

(Fig.2) Example: moon orbiting around the earth.



Discrete System:

In discrete mathematics, discrete systems are characterized by integers, including rational numbers in contrast to continuous systems which require real numbers. Discrete mathematics is the study of mathematical entities with discrete structure, with the property that do not vary smoothly, dealing with integers, graphs, with countable set in the fields of combinatory theory, graph theory, operations research, number theory, theory of computation that includes the study of algorithms and its implementations.

Lattice / Torus: See (Fig.25A)

Definitions: - Lattice is a discrete additive subgroup of $\mathbb{R}^n$.

Example: The lattice $\xi = \{\omega_1 m + \omega_2 n \; with \; (n, m) \in \mathbb{Z}^2\}$ subgroup of $\mathbb{R}^2$

- Torus is a surface generated from a circle revolving in 3Dim around an axis that does not intercept the circle; a torus also can be constructed by folding a lattice into a cylinder and joining its extremities to form the shape of a torus $T^n \sim \mathbb{R}^n / \mathbb{Z}^n$.

Note since $\mathbb{R}^2 \sim \mathbb{C}$, the 2- torus T^2 is isomorphic to $\mathbb{C}/\xi$.

Structure Fundamental in Number Theory:

I will be describing some important mathematical properties and definitions of the integers, which I will be developing and using in the future to explain a variety of physical's properties.

Definition of Prime, Composite and Palindrome Numbers:

- A prime number is a whole number that only has two factors which are itself and one.

- A composite number has factors in addition to one and itself. The numbers 0 and 1 are neither prime nor composite.
- A palindrome number is a 'symmetrical' number like 17271 that remains the same when its digits are reversed, and when the number and its reversed digits are not the same then these two numbers called transpalindrome numbers.

Properties:

1- The set M of positive integers is structured from three important subfamilies:
c = composite numbers, p = prime numbers and number 1
M= {1, composites, primes}

2- Each composite number c is a product of a finite prime numbers p_k

$$C = \prod_{k=1}^{n} p_k^{a_k} \qquad a_k\ powers\ of\ p_k$$

Example: 75=$5^2.3^1$

3- P-adic Expansions: Any positive integer C can be written in the field $\mathbb{Z}_p\ where\ p\ is\ a\ prime\ number)$

As a base p expansion: $C = \sum_{i=0}^{n} a_k p^k$ with $0 \le a_k \le p-1$.

Example: The binary expansion:$2^{n+1} - 1 = a_0 2^0 + a_1 2^1 + \cdots .. + a_n 2^n\ with\ a_i = 1\ \forall\ i \le n$

4- Any integer can be written as a string of a combination of iϵ{0,1,2,3,4,5,6,7,8,9}

The number xy with 2 digits is formed by joining x to y. The string is defined by xy= y+10x

Mean Value and Radius / Philosophy of Straight and Curved Style Numbers: O and │

We notice that the set I= {1,2,3,4,5,6,7,8,9} is formed from a group of straight style numerical letters and other groups of curved style of numerical letters.

$\delta_1 = \{1,4,7\} \ \rightarrow Straight\ Style \rightarrow\ 4\ is\ the\ mean\ value\ of\ 1\ and\ 7$

$\delta_2 = \{2,5,8\} \rightarrow Curved\ Style \rightarrow 5\ is\ the\ mean\ value\ of\ 2\ and\ 8$

$\delta_3 = \{3,6,9\} \quad \rightarrow Curved\ Style \rightarrow 6\ is\ the\ mean\ value\ of\ 3\ and\ 9$

The concept of the mean value and the radius of those sets are generated from a symmetrical transformation that connects $\delta_1, \delta_2 and\ \delta_3$ by the relation:

$M = \frac{x+y}{2}\ and\ R = \frac{x-y}{2} \rightarrow y = M - R\ and\ x = M + R$

$Where$: $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M \\ R \end{pmatrix}$ And $\begin{pmatrix} M \\ R \end{pmatrix} = \frac{1}{2} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix}$

We recognize the Hadamard's matrix:$H = \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$, $with \frac{\beta}{2} = \frac{\pi}{4}$, M and R are the spinor's components, $where\ HH^* = I\ (\ unitaire) with\ row\ vectors\ orthogonal.$

The Hadamard's matrix is a well known transformation used in wide applications such as quantum circuits, transmission, signal processing systems and error correcting codes.

Hadamard Iterative and Recursive Matrix H:

Let's denote by M_n, R_nan iterative sequence of mean value respectively radius of M and R,

Where $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M \\ R \end{pmatrix}$ and $\begin{pmatrix} M \\ R \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M_1 \\ R_1 \end{pmatrix}$ with $H = \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$

Lead to: $\begin{pmatrix} M \\ R \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}^2 \begin{pmatrix} M_2 \\ R_2 \end{pmatrix} = 2I \begin{pmatrix} M_2 \\ R_2 \end{pmatrix} = 2 \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M_3 \\ R_3 \end{pmatrix} = 2^2 \begin{pmatrix} M_4 \\ R_4 \end{pmatrix}$

Then: $\begin{pmatrix} M \\ R \end{pmatrix} = 2^p \begin{pmatrix} M_{2p} \\ R_{2p} \end{pmatrix}\ if\ n\ even, n = 2p$

And $\begin{pmatrix} M \\ R \end{pmatrix} = 2^p \sqrt{2}\ H \begin{pmatrix} M_{2p+1} \\ R_{2p+1} \end{pmatrix} = 2^p\ (\sigma_1 +\ \sigma_2) \begin{pmatrix} M_{2p+1} \\ R_{2p+1} \end{pmatrix} if\ n\ odd, n = 2p + 1$

Since $H = \frac{(\sigma_1 + \sigma_2)}{\sqrt{2}}$, $where\ \sigma_1, \sigma_2\ are\ Pauli\ matrices\ \sigma_1 = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}\ and\ \sigma_2 = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$

Where: $\sigma_1 \binom{X}{Y} = \binom{Y}{X}$ transforms $XY \to YX$ and $\sigma_2 \binom{X}{Y} = \binom{X}{-Y}$ transforms $XY \to X(-Y)$

We need now to evaluate the relation between 2^n *and the transformation* XY/YX .

Or 2^n can be deducted from Pascal's triangle and the binomial theorem!

Geometrical Representation of Spinors related to the Mean Value and Radius (Fig.3):

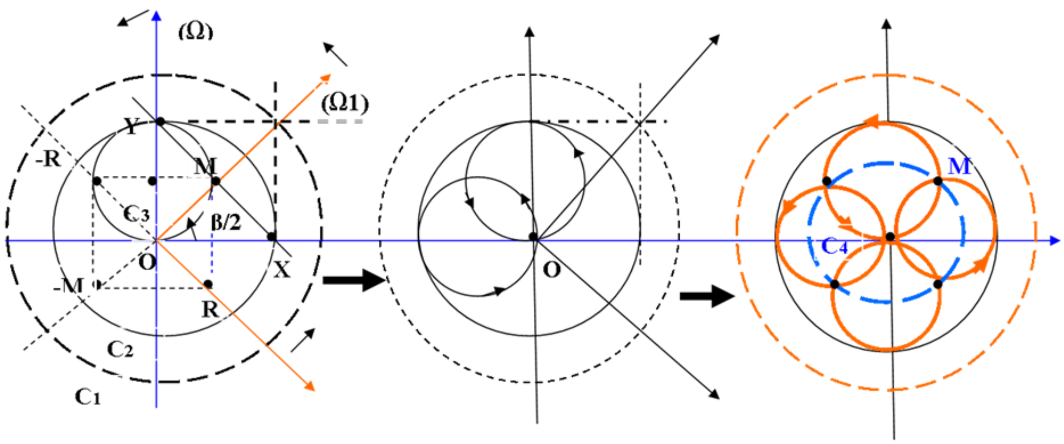
Spinors Definition:

Spinors are mathematical entities that can be defined as geometrical objects to expand the notion of the vector space under rotation, the notion of spinors have more advantage in the super-symmetry theory in contrast to tensors which are used in the symmetry theory.

Defined by: $\alpha \to \beta + \alpha$ *with* $S(\beta + \alpha) = MS(\alpha)$, where the operator M is the matrix that transforms the angular momentum under the rotation: $M = \begin{pmatrix} cos\frac{\beta}{2} & -sin\frac{\beta}{2} \\ sin\frac{\beta}{2} & cos\frac{\beta}{2} \end{pmatrix}$

$\to S(\alpha + 2\pi) = -S(\alpha)$

(Fig.3)



Let's denote by X, and Y two integer positives. The orbital of X and Y relatively to their radius and mean value is defined by: see (Fig.3)

With $M = \frac{X+Y}{2}$ *and* $R = \frac{X-Y}{2} \to X = M + R$ *and* $Y = M - R$

Let's denote by r: $\binom{X}{Y}$ *with* $X^2 + Y^2 = r^2$ and by r': $\binom{M}{R}$ *with* $(M^2 + R^2) = r'^2$

Then *since* $X^2 + Y^2 = 2(M^2 + R^2) \to r' = \frac{r}{\sqrt{2}}$

When X moves toward the fixed position Y, Y moves then toward the fixed position of (-X) and the point M moves toward Y then to O. While (-R) moves toward (-X) then O, describing the small second circle $C3$. M replaces then the position of (-R). Transformation consists of computing $cos\frac{\beta}{2}$ *and* $sin\frac{\beta}{2}$, with OMY and OXM (isosceles triangles).

But now if you consider the rotation of the two reperes orthonorme Ω1 and Ω then M is always on the circle C4. M and R are integers when: $X \pm Y \equiv 0[2]$ that when X and Y have the same parity, which will lead us in the future to introduce the bosonic and firmionic fields with the notion of commutation in the $\mathbb{Z}_2$ *Algebra*. Eventually the period is reached when X describes 2 full circles or 720^0. We have then the 4 following transformations:

$\binom{M}{R} \to \binom{M}{-R}, \binom{-R}{-M}, \binom{-M}{R}, \binom{R}{M},$ For reason of symmetry, let's denote then by: σ_1 *and* σ_2

the 2 matrices of transformation of $\begin{pmatrix} M \\ R \end{pmatrix}$: since $\begin{pmatrix} -R \\ -M \end{pmatrix} = -\begin{pmatrix} R \\ M \end{pmatrix}$ *and* $\begin{pmatrix} M \\ -R \end{pmatrix} = -\begin{pmatrix} -M \\ R \end{pmatrix}$

$\begin{pmatrix} M \\ -R \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}\begin{pmatrix} M \\ R \end{pmatrix} = \sigma_2 \begin{pmatrix} M \\ R \end{pmatrix}$ *and* $\begin{pmatrix} R \\ M \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} M \\ R \end{pmatrix} = \sigma_1 \begin{pmatrix} M \\ R \end{pmatrix}$. (See Fig.3)

We recognize here the Pauli matrices: $\sigma_1 = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ *and* $\sigma_2 = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$

And the relation: Pauli / Hadamard: $H = \frac{1}{\sqrt{2}}\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} = \frac{1}{\sqrt{2}}(\sigma_1 + \sigma_2)$

Quadratic Equation:

Let’s denote such equation by $F(X,Y) = X^2 + Y^2 = r^2$

Since our elements are integers, then r^2 corresponds to either 1, a composite or a prime!

In case of a prime: $F(X,Y) = X^2 + Y^2 = (X+iY)(X-iY) = r^2$ known by Gaussian integers, elements of $\mathbb{Z}[i]$, that describes the splitting of primes in Galois extension.

When $r^2 \equiv 1[4]$ then it splits into two different factors

And when $r^2 \equiv -1[4]$ it remains inert (Gaussian prime number).

In case r^2 equals to1 then we have the circle unity.

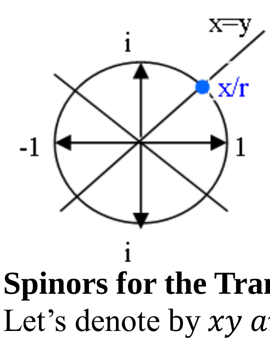
In general for a complex set, if $z = X + iY$ *the module* $\left|\frac{X}{r}\right|^2 + \left|\frac{Y}{r}\right|^2 = 1$ *, the points* $\pm\frac{X}{r}$ and $\pm\frac{Y}{r}$ are the 4 points that intercepts the lines $X = \pm Y$ and the circle unity. We recognize the circle unity for the group U (1): For $X = 1$ *and* $Y = i$ *with* $z = 1 + i \rightarrow |z| = \sqrt{2} = r \rightarrow r' = 1$.

With $iX = i$ *and* $iY = -1$ *yield to introduce the third transformation* $\sigma_3 = i\sigma_1\,\sigma_2$

Or $X^2 + Y^2 = r^2 \rightarrow \left(\frac{X}{r}\right)^2 + \left(\frac{Y}{r}\right)^2 = \frac{1}{r^2}(X^2+Y^2) = 1$ *for a circle unity* $\rightarrow$ *Introduce* the inverse square law of physics for a harmonic oscillation related to intensity, force, quantity and potential which is proportional to the inverse square of the distance in such phenomenal physics from sound, radiation and also to the electric / magnetic / Newton’s force of gravity.

The spin of a discrete number has the same properties as the spin of a particle related to the quadratic equation $\boldsymbol{F(X,Y) = X^2 + Y^2 = r^2}$: that implies invariance under rotation through its center of symmetry, which can be writing also as $\frac{1}{2}((X-Y)^2 + (X+Y)^2) = r^2$.

The expected value and variance in probability quantum theory coincide with the concept of mean value and radius for discrete numbers. These formulations are considered to be useful to determine Time’s properties, gravity’s phenomena and quantum circuit path (See later).



(Fig.4)

Spinors for the Transpalindrome numbers:

Let’s denote by xy *and* yx, 2 *transpalindrome numbers*, with the relations:

$xy = y + 10x$ *and* $yx = x + 10y$

And by M *and* R respectively mean value and radius of x and y:

$$\begin{cases} xy - yx = 9(x-y) = 18R \equiv 0[9] \text{ here signe } - \text{ indicate a local point (property of Derivative)} \\ xy + yx = 11(x+y) = 22M \equiv 0[11] \text{ and signe } + \text{ indicate a global location (property of Integral)} \end{cases}$$

If M' *and* R' are respectively mean value and radius for xy *and* yx then:

$\begin{cases} M' = 11M \equiv 0[11] \\ R' = 9R \equiv 0[9] \end{cases}$ And $\begin{pmatrix} xy \\ yx \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M' \\ R' \end{pmatrix}$

Evaluation of 2^n *and the transformation* XY/YX (Seen before)

Generating functions related to Pascal's Triangle:

We will be studying three important generating functions for the following sequences: Expanding powers of 2, Triangular numbers and Fibonacci numbers.

- **For function generating Fibonacci numbers:**

Let' denote by: $f(z) = \frac{1}{1-(z+z^2)} = \frac{A}{1-\alpha z} - \frac{B}{1-\beta Z}$

Then: $A, B = \frac{1 \pm \sqrt{5}}{2\sqrt{5}}$ and $\alpha, \beta = \frac{1 \pm \sqrt{5}}{2}$ while $\frac{A}{1-\alpha z} = A \sum_0^\infty \alpha^n z^n$

$f(z) = \frac{1}{1-(z+z^2)} = \frac{1}{\sqrt{5}} \sum_0^\infty \left(\left(\frac{1+\sqrt{5}}{2}\right)^n - \left(\frac{1-\sqrt{5}}{2}\right)^n\right) z^n = \sum_0^\infty f_n z^n$ (f_n *fibonacci sequence*)

- **For function generating Triangular numbers:**

Let's denote by $u_n = 1 + 2 \ldots + n$ *and* $f(z) = \sum_0^\infty u_n z^n$ the generating function of u_n

Then $u_n = u_{n-1} + n$ imply: $\sum_0^\infty u_n z^{n-1} = \sum_0^\infty u_{n-1} z^{n-1} + \sum_0^\infty n z^{n-1}$

Lead to: $\frac{f(z)}{z} = f(z) + \sum_0^\infty (z^n)' = f(z) + \left(\frac{1}{1-z}\right)' = f(z) + \frac{1}{(1-z)^2}$

Then: $f(z) = \frac{z}{(1-z)^3} = \sum_0^\infty u_n z^n$

- **For function generating $v_n = 2^n$:**

The generating function of v_n corresponds simply to: $\frac{1}{1-2z} = \sum_0^\infty 2^n z^n$

Those generating functions show an interesting relation relatively to the function $f(z) = \frac{1}{1-z}$.

Or for $z = i$, $f(i) = \frac{1}{1-i} = \frac{1+i}{2}$ and its conjugate is $\overline{f(\imath)} = \frac{1-i}{2} = f(-i)$ Mean and Radius of $(1, i)$ related to the circle unity. By using Hadamard matrix H:

$\begin{pmatrix} \boldsymbol{f(i)} \\ \boldsymbol{f(-i)} \end{pmatrix} = \frac{\mathbf{1}}{\mathbf{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} 1 \\ i \end{pmatrix} = \frac{1}{\sqrt{2}} H \begin{pmatrix} 1 \\ i \end{pmatrix}$ (Property that will be used to study the graviton)

Although the function $f(z) = \frac{1}{1-z}$ involves the mobius transformation with the property to generate inverse circles (loops and strings) and preserves angles of the form:

$z \to f(z) = \frac{az+b}{cz+d}$. Where $\begin{pmatrix} a & b \\ c & d \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ -1 & 1 \end{pmatrix}$. While $det \begin{pmatrix} a & b \\ c & d \end{pmatrix} = ad - bc = 1$.

Transformation that corresponds to the special linear group SL (2, ℝ), a simple real Lie group defined by: $SL(2, \mathbb{R}) = \left\{ \begin{pmatrix} a & b \\ c & d \end{pmatrix} \setminus \ a, b, c, d \in \mathbb{R} \ and \ ad - bc = 1 \right\}$. [1]

This transformation also corresponds to the modular group $\Gamma$of lineaire transformations of the upper half of the complex plane: $\mathbb{H} = \{x + iy \ with \ y > 0, and \ x, y \in \mathbb{R}\}$ used in the hyperbolic geometry, which is known by Poincare half plane model in non Euclidean geometry for the curved metric. The modular group is isomorphic to the projective special linear group PSL (2, ℤ), while the modular group PSL (2, ℤ) ~ SL (2,ℤ)~$Sp(2, \mathbb{Z})$ the symplectic group.

Let's denote by: $\begin{cases} S(z) = \frac{1}{z} \ (inverse \ map) \\ T(z) = -z + 1 (reflexion \ and \ translation) \end{cases}$

Then $SoT(z) = S(-z + 1) = \frac{1}{1-z} = f(z)$ and $ToS(z) = \frac{z-1}{z} = f(z)^{-1}$

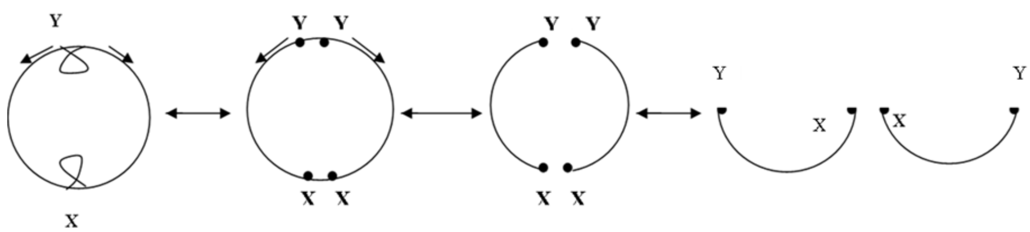
Let's denote $f(z) = z' = \frac{1}{1-z} \to z' - zz' = 1 \to \boldsymbol{z' = 1 + zz'}$(important equation will be used in algorithm of strings)

The fixed point: $f(z) = z \to z = \frac{1}{2} \pm \frac{\sqrt{3}}{2} = e^{\pm i\frac{\pi}{3}}$ and $|z| = 1$ defines the group cyclic of order 6.
The eigen-values of an element M of $SL(2, \mathbb{R})$ verify the characteristic polynomial:

$$\lambda^2 - tr(M)\lambda + 1 = 0$$

$|Tr(M)| = 1 < 2,\ M\ is\ then\ a\ rotation$, while $\lambda\ is\ the\ fixed\ point.$
And by using the generators S and ST we have $S^2 = I\ and\ (ST)^3 = I$ and $T^5 = I$
The representation of the modular group Γ of this transformation is then isomorphic to≈ $\langle S, T\ with\ \ S^2 = I\ ,\ T^5 = I\ and\ (ST)^3 = I \rangle$, product of two cyclic groups $Z_2\ and\ Z_3$.
The reflexion group is spherical of finite type since $\frac{1}{2} + \frac{1}{3} + \frac{1}{5} > 1$
It describes the rotational triangle group (2, 3, 5) and corresponds to the icosahydral group.
This transformation defines a tessellation of the hyperbolic plane by hyperbolic triangles.
We can also interpret that $SL(2, \mathbb{Z})\ = \left\{ \begin{pmatrix} 0 & 1 \\ -1 & 1 \end{pmatrix} \setminus\ with\ detM = 1 \right\}$ as a holomorphic function, modular form with weight k: $f\left(\frac{1}{1-z}\right) = (1-z)^k f(z)$ with the property of an automorphic form.
This analytical function has the expansion to infinite: $f(z) = \sum_n^\infty \beta_n e^{i2\pi n z}$ where z is in the upper half plane, indicate the extension of Galois representation to Analysis "waveform" for a harmonic motion.

Strings with the Concept of Parity or Chiral Symmetry and Spiral of Fibonacci (Fig.5):
Giving two elements X and Y orbiting with an oscillation harmonic describing the following algorithm YXXY, XYYX, related to the quadratic equation $X^2 + Y^2 = r^2$ with the asymmetry property, defined in an oriented space. (Which is seen in nature, example: a pair of human's feet or hands)



(Fig.5)

We recognize this finite sequence as a string concatenation of alphabets X, Y with length 4.
For this regular language or expression, let's define the product by composing letters of the string: Our string then has the form of: $XYYX$ ... The alphabets orbit with an oscillation harmonic following the regular language $E_1 \cup E_2$ which is a combination of the two disjoints regular expressions $E_1 and\ E_2$, with a monoid structure, where the union is represented by +, the concatenation by the product and by using the Kleene's Star closure operation for this algorithm of strings, where z^*defined by $z^* = 1 + z + z^2 + z^3 \ldots \ldots . + z^n$=$\sum_0^\infty z^n = (1-z)^{-1}$
Then we have the equation $z^* = 1 + z.z^*\ \ \ Equation\ (I)$.
Or $(X/YY)^*\ corresponds\ to\ (z/z^2)^*\ that\ yield\ to\ (z + z^2)^*$.
And by replacing z by $F = z + z^2\ in\ the\ equation\ (I)\ \ F^* = 1 + F.F^* = 1 + (z + z^2)F^*$
Yields to:

$$F^* = (1 - (z + z^2))^{-1}\ or\ \frac{1}{1-(z+z^2)} = 1 + (z + z^2) + (z + z^2)^2\ \ldots = \sum_0^\infty f_n z^n$$

By the method of comparing the coefficients of z^n.

$$\frac{1}{1-(z+z^2)} = \sum_{i=0}^\infty c_n z^n\ is\ also\ Maclaurin\ series\ with\ undetermined\ coefficients\ c_n.$$

The generating function for f_n (Fibonacci sequence):

$F^* = f(z) = \frac{1}{1-(z+z^2)} = \sum_0^\infty f_n\, z^n \to f_n = c_n$

The convergence radius of this series then is equal to:

$R = lim_{n\to\infty} \left|\frac{C_n}{C_{n+1}}\right| = \varphi = \frac{1+\sqrt{5}}{2}$ Golden Ratio

String Concatenation:

Let's denote: $by\ S = \{X, Y\}\ and\ by\ F_1 = X,\ F_2 = Y\ and\ F_3 = Z\ with\ F_n = F_{n-1}F_{n-2}$

And by $f_1 = 1\ ,\ f_2 = 1\ and\ f_n = f_{n-1} + f_{n-2}\ the\ fibonacci\ sequence$

We have then:

		f_n
F_1	X	1
F_2	Y	1
F_3	$F_2F_1 = Z = YX$	2
F_4	$F_3F_2 = YXY$	3
F_5	$F_4F_3 = YXYZ = YXYYX$	5
F_6	$F_5F_4 = YXYYXYXY$	8

Note: $F_6 = YXYYXYXY\ since\ Z = YX\ then\ F_6 = ZYZZY \to z/z^2$

Equation of this dynamical system:

$f_1 = 1\ ,\qquad f_2 = 1\ and\ f_n = f_{n-1} + f_{n-2}\ the\ fibonacci\ sequence$

Let's denote $x_n = \begin{pmatrix} f_{n-1} \\ f_n \end{pmatrix}\ and\ J = \begin{pmatrix} 0 & 1 \\ 1 & 1 \end{pmatrix}\ then\ x_{n+1} = Jx_n(Operator\ J)$

$\to x_n = J^n x_1$

The characteristic Equation: $det \begin{pmatrix} -\tau & 1 \\ 1 & 1-\tau \end{pmatrix} = 0\ \to \tau^2 - \tau - 1 = 0$

Eigen-values then are: $\tau_{1,2} = \frac{1}{2}(1 \pm \sqrt{5})$ and Eigenvectors $V_{1,2} = \begin{pmatrix} 1 \\ \tau_{1,2} \end{pmatrix}$

If $x_1 = \alpha V_1 + \beta V_2$, with the initial data: $\alpha = -\beta = \frac{1}{\tau_1 - \tau_2} = \frac{1}{\sqrt{5}}$

Then $\alpha {\tau_1}^n V_1 + \beta {\tau_2}^n V_2 = x_n$

$\boxed{\to\ \boldsymbol{x_n} = \frac{\mathbf{1}}{\sqrt{\mathbf{5}}}(\boldsymbol{\tau_1}^{\boldsymbol{n}} - \boldsymbol{\tau_2}^{\boldsymbol{n}}) = \frac{\mathbf{1}}{\mathbf{2}^{\boldsymbol{n}}\sqrt{\mathbf{5}}}\left((\mathbf{1}+\sqrt{\mathbf{5}})^{\boldsymbol{n}} - (\mathbf{1}-\sqrt{\mathbf{5}})^{\boldsymbol{n}}\right) \textbf{ Solution of } y'' - y' - 1 = 0}$

Let's denote by $M = \frac{1+\sqrt{5}}{2}\ and\ R = \frac{1-\sqrt{5}}{2}$ then $f_n = \frac{1}{M-R}((M)^n - (R)^n)$

We retrieve then again the Hadamard Transformation by:

$\to \begin{pmatrix} M \\ R \end{pmatrix} = \frac{1}{2}\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{\sqrt{2}} H \begin{pmatrix} x \\ y \end{pmatrix}\qquad with(x, y) = (1, \sqrt{5})$, that generates $\mathbb{Z}[1+\sqrt{5}]$

Note the equation $\tau^2 - \tau - 1 = 0$ has solution in $\mathbb{Z} \backslash_{p\mathbb{Z}}$ with p prime, only if:

$\Delta = 5\ is\ a\ square \to p \equiv 1,4[5]$.

Configuration Numeric / Root System using Modular Concept related to the Quadratic Equation:

Due to the interesting properties of the sets $\delta_1, \delta_2, \delta_3$ we will be then developing $\delta_1, \delta_2, \delta_3$ with more interpretations:

In this etude I will be determining the path of each element in the lattice.

The order of the three groups is well known as the 3x3 matrix $M_{a_{ij}}$with $a_{ij} \in\ (1,2,3 \ldots, 9)$

$M_{a_{ij}} = \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}\ = (\delta_1 \quad \delta_2 \quad \delta_3)$

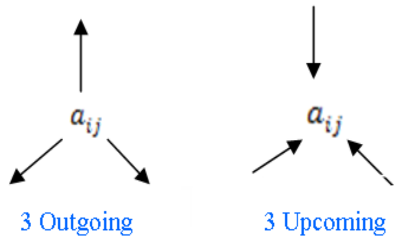
Det $M_{a_{ij}} = 0 \to M_{a_{ij}}$ is singular, not invertible (infinity of solutions), with eigen-value equals 0.

By applying non singular linear transformation the base that generates the lattice is of rank 2. Let's denote spin+d by a symmetrical transformation of the module relatively to a quadratic equation, defined by $spin \pm d = \frac{x \pm y}{2}$ where x and y elements of $\{1,2,3,..,9\}$. The space is considered a quantum Space (It's a Hilbert space; the space is defined in a district system over a field $\mathbb{Z}/_{p\mathbb{Z}}$, where the space is measurable). Each number is considered as an object with a space position a_{ij} and with the coordinates in the space i *and* j .
Each element a_{ij} of δ_i with $1 \leq i \leq 3$ is connected to δ_{i+1} per **spin$\pm$1** or **Spin$\pm$4**.
And each element a_{ij} of δ_i is connected to the other element $a_{i+1,j}$ of δ_i per **spin$\pm$3**.

Example: We get the following representation: $\begin{pmatrix} \delta_1 & \delta_2 \\ 1 \rightarrow & 2 \\ \downarrow 4 & \searrow 5 \end{pmatrix}$

Giving two integers positives x, y *of* $\mathrm{I} = \{1,2,3,..,9\}$ *then* :

$spin \pm d = \frac{x \pm y}{2} \in \left\{\frac{\pm 1}{2}, \pm 1, \frac{\pm 3}{2}, \pm 2, \frac{\pm 5}{2}, \pm 3, \frac{\pm 7}{2}, \pm 4\right\}$ *where* $spin(-d) = spin\ (9-d)$



⇒ each element or vertex corresponds to 6 connections or edges
This notion is important in Knot Theory, Category Theory for functors, Graph Theory, and Simplex Theory

(Fig.6)

The spin+4 is a linear combination of the spin+1 and spin+3.
The spin's paths of the elements describe a hexagonal Lattice for the group acting which is related to the root system of one of the symmetric groups.
For the **opposite direction**: **Spin+6, spin+8, spin+5**

Example: We get the inverse following representation $\begin{pmatrix} \delta_1 & \delta_2 \\ 1 \nwarrow & 2 \\ 4 & \leftarrow 5 \uparrow \end{pmatrix}$

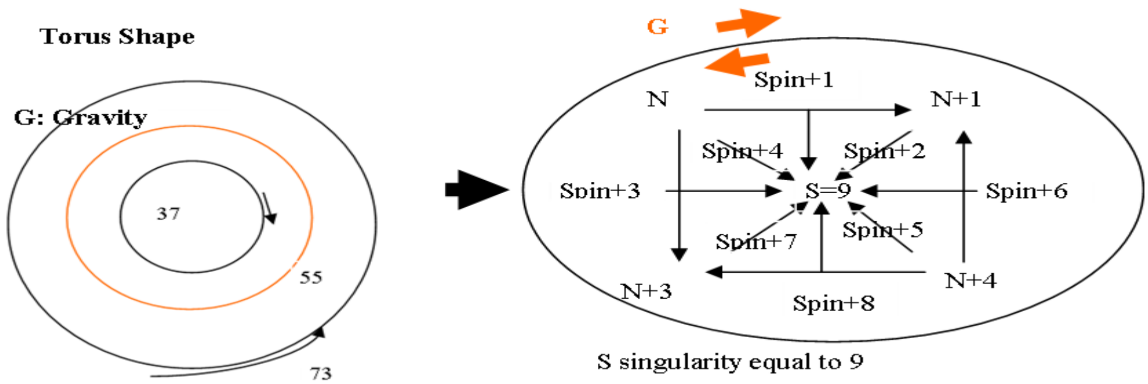
Note:
(Spin+6) + (spin+8)= $(spin + 5)$ $\rightarrow$ *since* $6 + 8 = 14 \equiv 5[9]$
(Spin+1) + (spin+3)= $(spin + 4)$ and $4^2 + 5^2 = 41$

$6^2 + 1^2 = \mathbf{37}$ And $8^2 + 3^2 = \mathbf{73}$ **(Spin related to a quadratic equation).**
Then the mean value of the transpalindromes 37 and 73 is: $\frac{\mathbf{73+37}}{\mathbf{2}} = 41 + 14 = 55.$
The spin+1 and spin+6 describe the gravity. Spin+1 is related to the phase transformation U (1).
Note: 55 is also the mean value of $\Delta_{ii} = \{11, 22, 33, \ldots \ldots \ldots 99\}$
The last group of spins remaining: **Spin+2, Spin+7, Spin+9**
We can resume those spins in the following diagram, giving a number N of the matrix M.

$The\ powers\ 2^{n\rightarrow} \equiv 5^{n\leftarrow} Orbit\ with\ harmonic\ motion, see$ (**Powers of** $\boldsymbol{\delta_1}, \boldsymbol{\delta_2}, \boldsymbol{\delta_3}$)

And $2 \equiv -7[9]$ *while* $5 \equiv -4[9] \rightarrow 4^{n\rightarrow} \equiv 7^{n\leftarrow}$

This combination of spins results from a simple (helix) transformation that transforms a lattice into a cylinder (curved space of dim2). Since the lattice is periodic (modulo 9), then by joining its extremity, the cylinder is then transformed into a torus. The configuration numeric for the elements of $M_{a_{ij}}$ is related to Cartan Algebra for the group acting.



(Fig.7)

Mathematical Notion of Event Horizon, and Singularity interpreted from Strings:

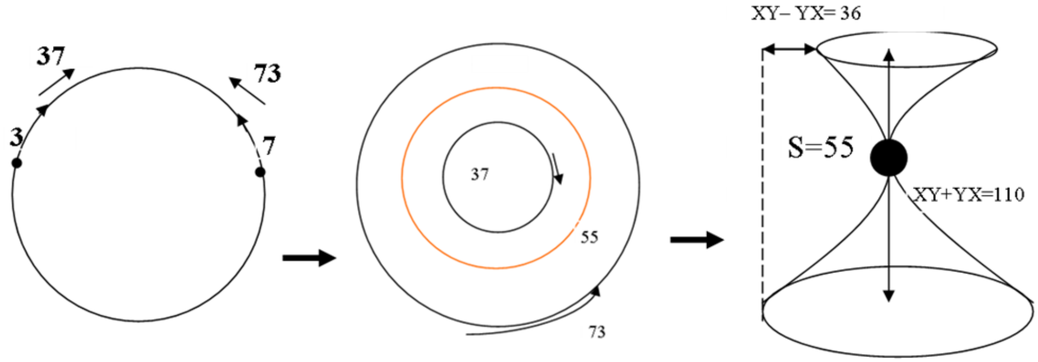


Fig.8

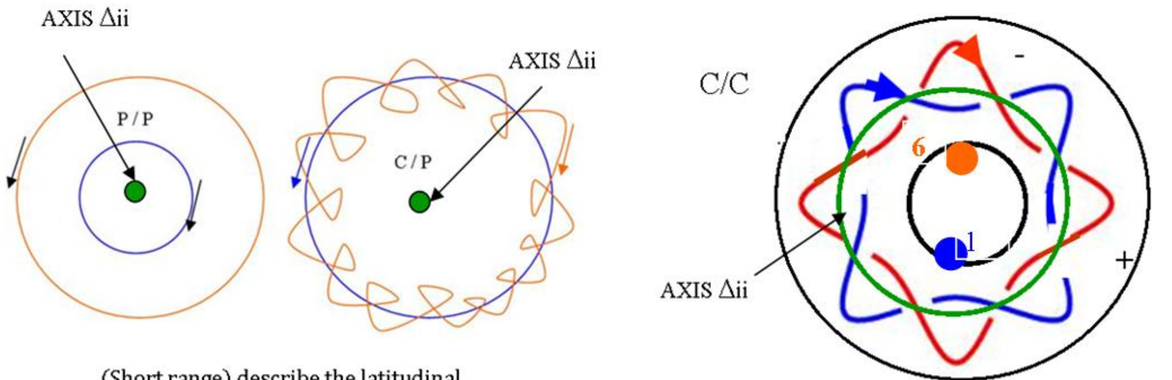
The numbers 37 and 73 are among important numbers in the system, I will be then showing the numbers 37 and 73 are the Event Horizon for black holes, simply represented by the letter G: Gravity, while the number 55 there mean value is the singularity; the question is how the gravity and electromagnetism function in the universe?

First I will be describing the properties of those numbers:

- 37 and 73 result from a rotation determined by spin+6 and spin+1.
- 37 and 73 are asymmetric with opposite directions (oscillate with harmonic motion) and their mean value equals to 55. ($37 converges \rightarrow\ M = 55 \leftarrow converges\ 73$)
- As a mass/quantity, $37 \leq 73\ then\ 37 \subset 73$. As a result, the mechanism of attraction from law of gravity is induced.
- As a charge 37 and 73 have opposite charges $+/-$. And as a result, the mechanism of attraction from law of electromagnetism is induced for a magnetic dipole.
- Mathematically 37 and 73 are primes, two closed strings indecomposable, with 0 knot, invariant under rotation and are of short range that intervene a continuity of spin.

  Now in absence of electric charge, the dipole magnetic (Axis) is neutral (Case of black-holes) with higher gravity. The question is what generates the gravity? We will be proving that gravity results from the rotation of the multi-verse, and is higher in the absence of electromagnetism field. The number 37 represents the ring of a solenoid (Torus) with axis $\Delta_{ii} = \{11, 22, 33, ..99\}$, described also by a string that vibrates harmonically (particle/wave). Its spinors and components are 1 and 6, while 1 is related to the phase transformation U(1) to define time, and 6 is related to the numerical equations: $1 + \sqrt{5}^2 = 6$, and $1^2 + 6^2 = 37$ related to Golden Ratio and Flow 5 to define the dynamics of the multi-verse (See later). Since our system is based on an oscillation harmonic relatively to a quadratic equation (rotation). The gravity then is seen as a result of a curved space/time.

Physical Representation of Transpalindrome Numbers / Torus Shape (Fig.9)



(Short range) describe the latitudinal orbital

(long range) including the axis describe the longitudinal orbital

P/P Gravity **C/P Electromagnetism** **C/C Strong Force** **(1,6) Weak Force**

closed loops

- P/P(prime/prime) are attractive since they orbit with opposite direction +/-
  In absence of charge (neutral magnetic dipole) the gravity is super important.
- C/P (Composite/Prime) are attractive since they orbit with opposite direction +/-.
  In presence of charge, create an electromagnetic field, and from the (Faraday's Law) the electric field curls around the magnetic field with a harmonic oscillation. In this case the gravity is very weak comparative to electromagnetic field.
- C/C (Composites/Composites) attractive since they orbit with opposite direction +/- , and describe a long range helical (double helix) orbit, where particle and its partner commute or anti-commute according to the type of symmetry.

From Faraday's law and Ampere's law E and B describe a helical electromagnetic wave.
Are there more Spins for a_{ij}? Since the **Singularity** corresponds to spin+9, then the spins are integers modulo 9, all roots are then $\equiv 0[9]$. Though we can proceed with the following spin's representation: 9=8+1=7+2=6+3=5+4=4+5=3+6=2+7=1+8 (commutative/reversible**)**

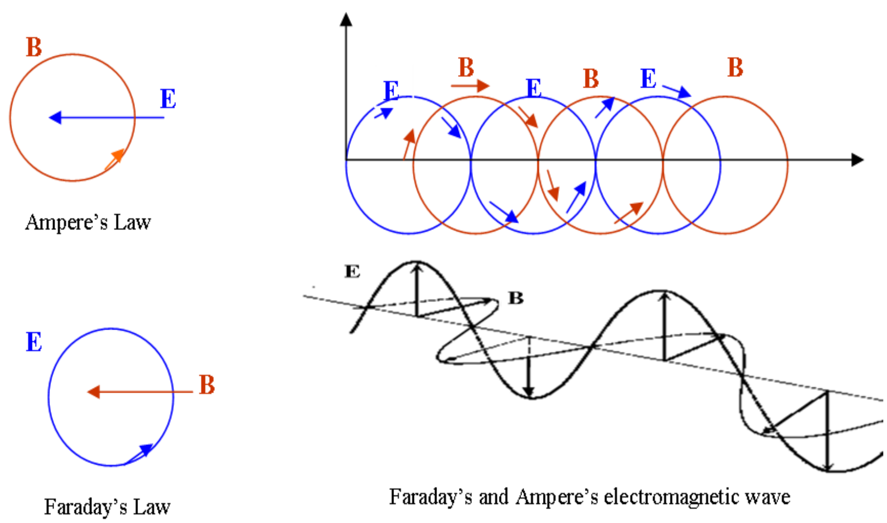
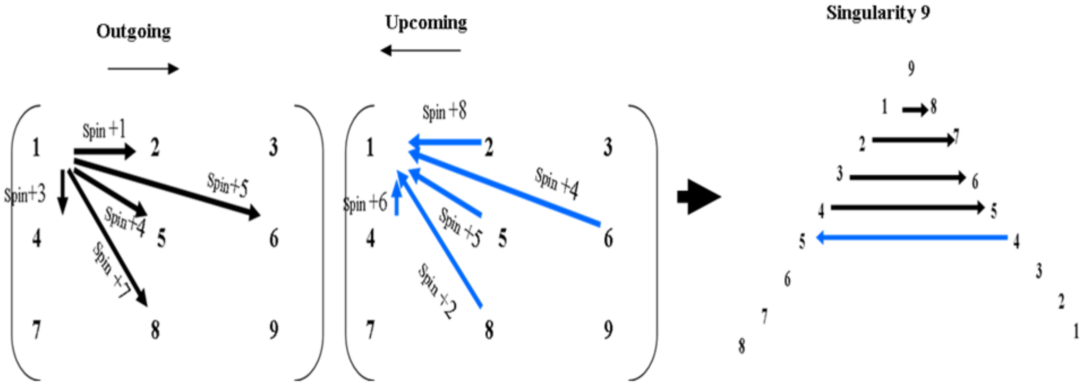


Fig.10)

Conclusion: Each number has 5 roots that form a base of rank 5.
This crystallography $\boldsymbol{M_{99}}$ =$\{\mathbf{1,2,3}\ \ldots,\mathbf{99}\}$
$\boldsymbol{has}\ \mathbf{99\times 5=495}\ \boldsymbol{roots\ or\ edges}, \mathbf{495\equiv 0[5],\equiv 0[9],\equiv 0[11]}$ **.**
To determine the reduced total number of roots for the system, we need to find the smallest period of its sequences related to the system, and that when $n=6$, **"See below the period of the sequences for the system".**
This gives us the total of roots equals to$R=5\ \times\ 6=30\ roots$, or we now the total roots for the group symmetric A_{n-1} is equals to $n\times(n-1)$ then 30 roots in our system correspond to the group symmetric$A_{6-1}=\ A_5$, or dim $A_5=5$.
Conclusion: The rank for the basis of the set $\boldsymbol{M_{99}}$ =$\{\mathbf{1,2,3}\ \ldots,\mathbf{99}\}$ $\boldsymbol{is\ equal\ to}\ \mathbf{5}$
Let's denote by B a set of vectors that span $\boldsymbol{M_{99}}$ **.**
$\boldsymbol{M_{99}}\ =\boldsymbol{span}\ (\boldsymbol{B})$ **, with** $\boldsymbol{B}=\{\boldsymbol{v_1},\boldsymbol{v_2},\boldsymbol{v_3},\boldsymbol{v_4},\boldsymbol{v_5},\}$ **of rank 5.**
Then: $\boldsymbol{M_{99}}\ =\boldsymbol{span}(\{\boldsymbol{v_1},\boldsymbol{v_2},\boldsymbol{v_3},\boldsymbol{v_4},\boldsymbol{v_5}\})$
Dimension of our Space/Time $=\dim A_5=5$ the 5 simplex polytope (see later in Simplex for more proves)



(Fig.11)

Powers of $\delta_1,\boldsymbol{\delta_2},\boldsymbol{\delta_3}$:
The reason to study the power of the numbers is to determine the periodicity and the uniformity of the system, and reduce the system. The notion of cardinality is also important to describe the state level of the system and its dimension.
Since we already mentioned the decomposition of a composite in the property 2**:**
" Each composite number c is a product of a finite prime numbers $p_k\ with\ power\ a_k$":

$$C=\prod_{k=1}^{n}p_k^{a_k}$$

Let's denote $\boldsymbol{J}=\{\mathbf{1,2,3,4,5,6,7,8,9}\}=\{\mathbf{1,2,3,2^2,5,2\times 3,7,2^3,3^2}\}$
$\delta_1=\{1,4,7\}$, $\delta_2=\{2,5,8\}$, $\delta_3=\{3,6,9\}$ for n integer/ n ≥ 0 the powers of the elements of δ_i for $1\leq i\leq 3$ using the modular arithmetic modulo 9:
1^n=$\{1\}$ $converges\ toward$ 1
2^n=$\{\mathbf{1,2,4,8,7,5},1,2,4,8,7,5.\}and\ 5^n=\{\mathbf{1,5,7,8,4,2},1,5,7,8,4,2.\}$ periodic of period P=6
$3^n=\{1,3,9,9\ \ldots.,9\}$, $6^n=\{1,6,9,9,\ldots.9\}$ And $9^n=\{1,9,9\ \ldots\ldots.9\}$ Converges toward 9.
$4^n=\{\mathbf{1,4,7},1,4,7,\ldots..\}\ and\ 7^n=\{\mathbf{1,7,4},1,7,4\ \ldots\ldots.\}$ Periodic of period $P=3$
$8^n=\{\mathbf{1,8},1,8\ \ldots\ldots\}$ Periodic of period $P=2$
If we project the elements of each set on a circle, we notice that :

The powers of 2 and 5 belong to δ_2 and are equal but they orbit in opposite direction, while the power of 4 and 7 belong to δ_1 *and* are equal also but orbit in opposite direction.
Harmonic Motion: The powers of the numbers orbit with a harmonic oscillation.
$2^{n^{\rightarrow}} \equiv 5^{n^{\leftarrow}}$ *and* $4^{n^{\rightarrow}} \equiv 7^{n^{\leftarrow}}$ And $2 \equiv -7[9]$ *while* $5 \equiv -4[9]$
The powers of 3 and 6 intercept at the point 9: $3^n \cap 6^n = 9^n$ $3^n \cup 6^n = \{1,3,6,9\}$
$1^n, 4^n, 5^n, 7^n, 8^n \subset 2^n$ With $4^n \neq 8^n$
We can resume those powers in two groups:
Let's denote those groups by: $\boldsymbol{T_n} = 3^n \cup 6^n = \{1,3,6,9\}$ *and* $\boldsymbol{E_n} = 2^n = \{\mathbf{1}, \mathbf{2}, \mathbf{4}, \mathbf{8}, \mathbf{7}, \mathbf{5}\}$
And evaluate $\boldsymbol{E_n} = 2^n$, *and* $\boldsymbol{T_n} = \{1,3,6,9\}$
Pascal's Triangle and $\mathbf{2^n}$:
From the Binomial Theorem we have: $2^n = (1+1)^n = \sum_{k=0}^{n} \binom{n}{k} 1^k 1^{n-k} = \sum_{k=0}^{n} \binom{n}{k}$
The expanded powers of 2^n generate Pascal's Triangle:

$$E_0 = 2^0 = 1$$
$$E_1 = 2^1 = 1 \quad \nearrow^{T_n}$$
$$E_2 = 2^2 = 1 + 2 + \mathbf{1} \quad \nearrow^{H_n}$$
$$E_3 = 2^3 = 1 + 3 + \mathbf{3} + 1$$
$$E_4 = 2^4 = 1 + 4 + \mathbf{6} + 4 + 1$$
$$E_5 = 2^5 = 1 + 5 + \mathbf{10} + 10 + 5 + 1$$
$$E_6 = 2^6 = 1 + 6 + \mathbf{15} + 20 + 15 + 6 + 1$$

Sequences: $\boldsymbol{H_n, T_n, E_n, F_n, M_n}$ *and* $\boldsymbol{\Delta_1}$
From Pascal's Triangle we can generate important arithmetical and geometrical properties:
T_n *represents Triangular Numbers*: $T_n = \frac{n(n+1)}{2}$
H_n *represents Tetrahedral Numbers*: $H_n = \frac{n(n+1)(n+2)}{6}$
$E_n = 2^n$ *represents the total configuration of states with n elements*
Since $2^0 + 2^1 + 2^2 \ldots\ldots + 2^{n-1} = 2^n - 1$
Δ_1 *represents simply the axis*
$M_n = \{1,2,3 \ldots\ldots n\}$ *represents the element of the states*
Finally F_n *represents the sequence of Fibonacci Numbers*

$$F_{n+2} = F_{n+1} + F_n \text{ with } F_0 = F_1 = 1$$

Physical Interpretation of the Sequences in Pascal's Triangle:
Let's prove the following properties:

$-\ T_n$ *represents the dynamical function of Time.*
$-\ E_n = 2^n$ *represents the total configuration of Energy States for n elements*
Since $1 + 2^0 + 2^1 + 2^2 \ldots\ldots + 2^{n-1} = 2^n$ Related to Hadamard code that defines the quantum circuit of the universe, by using binary system for 2 digits 0 and 1 called bits or qubits for a quantum data information circuit that generates the universe.
$-\ M_n = \{1,2,3 \ldots\ldots n\}$ *represents the elements of the states or the particles with* $n \leq 99$
$-\ F_n$ *represents the dynamical function of the Space*

Important Relations Between Sequences:
Triangular numbers and Tetrahedral numbers: $\boldsymbol{\sum_1^n T_n = H_n}$
Odd numbers and Square numbers: $\boldsymbol{\sum_1^n 2i - 1 = n^2}$
Triangular numbers and Square numbers: $\boldsymbol{T_n + T_{n-1} = n^2}$ **and** $\boldsymbol{T_n - T_{n-1}} = \mathrm{n}$

$$\left(\frac{T_n + T_{n-1}}{2}\right)^2 + \left(\frac{T_n - T_{n-1}}{2}\right)^2 = \frac{1}{2}T_{n^2} \quad where \quad (T_n)^2 + (T_{n-1})^2 = T_{(n^2)}$$

Configuration Electronic and Pascal's Triangle:

An electron configuration is the arrangement of electrons around nucleus, it consists of numbers and letters that indicate the energy level 1,2,…and the orbital s, p, d,….while the proton configuration describes also the orbital on the nucleus.

Energy Level	Maximum number of electrons	Maximum number of proton
n	$2n^2 = 2\sum_1^n 2p - 1 \quad (2\sum odds)$	$n(n+1) = 2T_n$

The configuration is also related to Pascal's Triangle.

1s2s2p3s3p4s3d4p5s…….(along the diagonal $\boldsymbol{F_n}$ $of\ fibonacci\ in\ Pascal's\ triangle$)

1s				
2s	2p			
3s	3p	3d		
4s	4p	4d	4e	
5s	5p	5d	5e	5f

Period of the System:

Period of the Sequences in base modulo 9 :

$-\boldsymbol{T_n} = \{\mathbf{1,3,6,1,6,3,1,9,9}, 1,3,6,1,6,3,1,9,9, \dots\dots\}$ **Periodic oscillation**

The projection on the circle of numbers 1,3,6,1,6,3,1,9,9 results in the orbital with reverse oscillations 1,3,6,1 then back to 6,3,1 with harmonic motion.

Period of $T_n\ equals$: $P_{T_n} = 9$

$-\boldsymbol{E_n} = 2^n = \{\mathbf{1,2,4,8,7,5}, 1,2,4,8,7,5\}$ **Periodic oscillation.**

Period of $E_n = 2^n$ equals $P_{E_n} = 6$

$-\boldsymbol{F_n} = \{\mathbf{1,1,2,3,5,8,4,3,7,1,8,9,8,8,7,6,4,1,5,6,2,8,1,9}, 1,1,2,3 \dots\dots\}$

Period of $F_n\ equals\ P_{F_n} = 24$

The sequence $\boldsymbol{F_n}$ has reverse oscillation: orbiting $\{(1,8),(3,6),9\}$ with respect to the three groups $\delta_1 = \{1,4,7\}$, $\delta_2 = \{2,5,8\}$, $\delta_3 = \{3,6,9\}$

1,1,**2**,3,**5**,8,**4**,3,**7**,1,**8**,9 $\longrightarrow$ 12 numbers and 9,**1**,8,**2**,6,**5**,1,**4**,6,**7**,8,**8** $\longleftarrow$ 12 numbers

The period common of the three sequences : equals to the **LCM** Least Common Multiple of their Periods: **P=** **LCM**$(\mathbf{6,9,24}) = \mathbf{72}$ with **n=6** the smallest period ($P_{E_n} = 6$)

System Reduction through Singularity and Periodicity :

Very Important : I will be studying the system through singularity and periodicity upon the following values of:

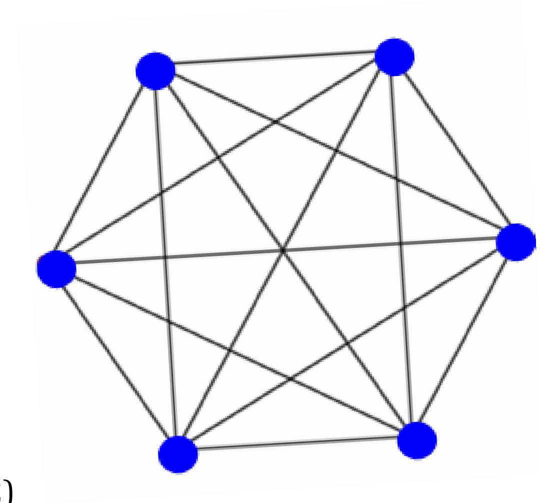
n=6 with the Period **p= 72** based on the singularity **modulo 9** and the gravity **G=37**

Simplex Polytope:

Geometric Interpretation of the Pascal's Triangle for n=6 :

In geometry a Simplex is a generalization of the notion of triangle and Tetrahedron to arbitrary dimension. An N-Simplex is an N dimensional Polytope which is the convex hull of its n+ 1 vertex. We can interpret the Pascal's Triangle simply by a succession of N simplex which is the process of constructing a N- Simplex from a (N-1)-Simplex by adding a new vertex to the exterior of the (N-1)-Simplex and joining it to all vertices of the (N-1)-Simplex. [1]

In five-dimensional geometry, a 5-simplex is a self-dual regular 5-polytope, the symmetric group S_6. It has 6 vertices, 15 edges, 20 triangle faces, 15 tetrahedral cells, and 6 pentatope facets. It is a 5 dimensional polytope which is the dim of space/time that coincide with A_5.



(Fig.12)

A^5	Coxeter Dynkin	vertices	Edges	Triangle	Tetrahedral	Pentatope	$2^{5+1}-1$
5- Simplex	◉-•-•-•-•	6	15	20	15	6	63

Pascal's Triangle modulo 9, with $n \leq 6$

$$E_0 = 2^0 = 1$$
$$E_1 = 2^1 = 1 + 1 \quad \nearrow^{T_n}$$
$$E_2 = 2^2 = 1 + 2 + \mathbf{1}$$
$$E_3 = 2^3 = 1 + 3 + \mathbf{3} + 1$$
$$E_4 = 2^4 = 1 + 4 + \mathbf{6} + 4 + 1$$
$$E_5 = 2^5 = 1 + 5 + \mathbf{1} + 1 + 5 + 1$$
$$E_6 = 2^6 = 1 + 6 + \mathbf{6} + 2 + 6 + 6 + 1$$

(Fig.13)

Positioning Pascal's Triangle to Determine the Symmetry of the System Modulo 9 : (Fig.14)

$$\boldsymbol{T}_{\boldsymbol{2n}^{\circlearrowleft}}\ \boldsymbol{M}_{\boldsymbol{2n+1}^{\circlearrowleft}}\ \Delta_1\ \boldsymbol{M}_{\boldsymbol{2n}^{\circlearrowleft}}\ \boldsymbol{T}_{\boldsymbol{2n+1}^{\circlearrowleft}}$$

Odd position 1 Even position

$\mathbf{1} + 1$

$1+\downarrow\ 2 + [1]$

$1+[3]+\mathbf{3} + 1$

$1+\downarrow\ 4 + [6] + 4 + 1$

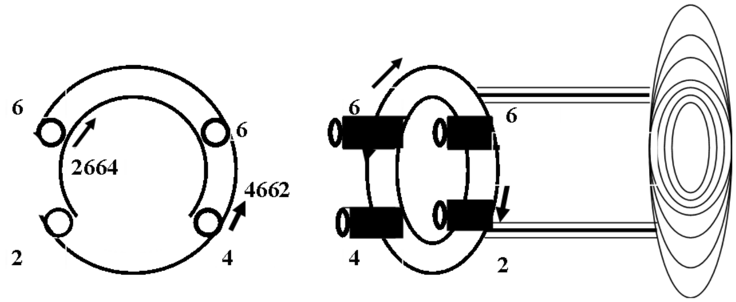
$1+5+ 1+ [1]+\mathbf{5} + 1$

$1+\downarrow\ 6 + [6] + 2 + 6 + 6 + 1$

This method of evens and odds separation is very important in the electrons and protons configuration, since the sequence of odds is connected to the squares by: $\sum_1^n 2k - 1 = n^2$ (see configuration for electrons and protons).

By separating Pascal's Triangle with odd numbers one side and even numbers to the other side: we notice that Δ_1 is the axis of the system, where $M_n$is orbiting around Δ_1, by joining M_{2n+1} to M_{2n}, and T_n orbiting around M_n and Δ_1 (Helix) by joining T_{2n} to T_{2n+1}. F_n Corresponds to a helicoidally trajectory by joining each point of the axis to its oblique diagonals. See(Fig.14)
[ ]: locate Triangular Numbers.
⊙: locate the finite closet string with repeated algorithm: 2664-4662-6642…….

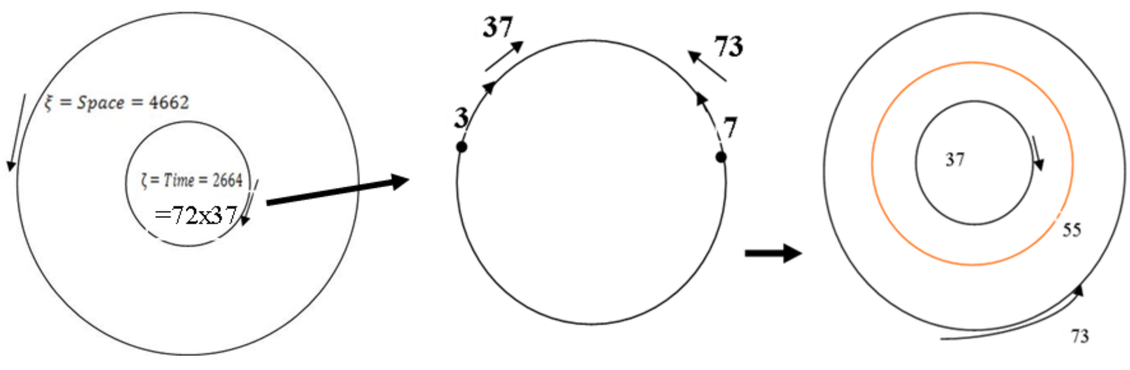
Divine Code 6642/ Key to the Equation:



(Fig.15)

Mathematically this Divine Code found in the repeated following algorithm of the string in the Pascal's Triangle 6642-4662 and2664 (See Fig.14&15) that has the representation of a harmonic oscillation between the two transpalindrome numbers 2664 and 4662. Let's project the numbers 6-6-4-2 in a circle; the **Code** is to rotate the **Key** anticlockwise from 6 to 2 to map the two transpalindrome numbers 2664 and 4662.

Interpretations of the two Transpalindrome Numbers 2664 and 4662:



4662= 7x666 while 2664=4x666=72x37 and 666=18x37
Interpretation:
73 composite numbers correspond to 73 vertices that form 72 edges. For each composite move the circle 37 describe one turn. With a period of 72 x 37 time.

(Fig.16)

2664≤ 4662, 2664 rotates in the opposite direction of 4662 (harmonic motion) and as a quantity 2664 is including in 4662. This hypothesis leads to the following representation: (See Fig.16)

Key to the Equation, Development of 2664 and 4662:

$4662 = 7\times 666$
$\underline{2664 = 4\times 666}$
$\mathbf{73}26 = 11\times 666$

By adding the two numbers:

$4662 + 2664 = 11 \times 666 \rightarrow$ *equation I*

$= 7326 \rightarrow$ *equation II*

Interpretations of the two equations:

- the equation I: The Mean Value A of 4662 and 2664 belongs to the diagonal Δ_{ii} (A is a multiple of 11) Aϵ Δ_{ii}= $\{11, 22, 33, \ldots\}$, 4662 and 2664 have the same axis of orbital.
- The equation II: 73 and 26 are just the total number respectively of the composite numbers and the prime numbers including number 1 in the set M_{99} = {1,2,3,4,5,6 … ,99}

The Greatest Common Factor of 2664 and 4662 is equal to 666, GCF(2664 ,4662) $= 666$.

Structure of the Transpalindrome Numbers and their Flow:

Consider now the bracket functions defined by: $[g(x,y)]_- = xy - yx = 2R$ and $[g(x,y)]_+ = xy + yx = 2M$, where R and M is respectively radius and mean value of xy, yx and also the spinor's components.

With $[g(x,y)]_{/\pm} = xy \pm yx$

$for\ M^2 + R^2 = r'^2 = \frac{1}{2}((xy)^2 + (yx)^2) = \frac{1}{2}(r)^2$

$\rightarrow \begin{pmatrix} xy \\ yx \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M \\ R \end{pmatrix} = \sqrt{2}\mathrm{H}\begin{pmatrix} M \\ R \end{pmatrix}$ (H: Hadamard Matrix)

Note for $(xy, yx) = (1, i) \rightarrow \begin{pmatrix} xy \\ yx \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} M \\ R \end{pmatrix} \rightarrow (M, R) = \frac{(1 \pm i)}{2} \rightarrow \frac{\varphi}{2} = \frac{\pi}{4}$

Introducing the concept of modular representation over ring and field, integrated with the Lie Bracket embedded with Clifford Algebra giving by $[g(x,y)]_{/\pm} = [xy]_{/\pm}$ in the following fields: $\mathbb{Z}/_{9\mathbb{Z}} = \mathbb{Z}/_{3^2\mathbb{Z}}$, $\mathbb{Z}/_{11\mathbb{Z}}$ $\mathbb{Z}/_{7\mathbb{Z}}, \mathbb{Z}/_{5\mathbb{Z}}$ *and* $\mathbb{Z}/_{2\mathbb{Z}}$

$-$ *In the Field* $\mathbb{Z}/_{11\mathbb{Z}}$ *and ring* $\mathbb{Z}/_{9\mathbb{Z}}$:

Since $xy - yx = (y + 10x) - (x + 10y) = 9(x - y)$

$\equiv 0[9] \rightarrow xy$ *and* yx ***commute*** *in* Ring $\mathbb{Z}/_{9\mathbb{Z}}$

And $xy + yx = (y + 10x) + (x + 10y) = 11(x + y)$

$\equiv 0[11] \rightarrow xy$ *and* yx ***anticommute*** *in the* Field $\mathbb{Z}/_{11\mathbb{Z}}$

$-$ *In the field* $\mathbb{Z}/_{2\mathbb{Z}}$:

Then the notion of the $\mathbb{Z}_2$-graded Algebra for the commutator implies:

$[xy]_{gr} = xy \pm yx \rightarrow [xy]_{gr}: \begin{cases} xy = yx \ \text{commute when } x \text{ and } y \text{ same parity} \\ xy = -yx \ \text{anticommute when } x \text{ and } y \text{ different parity} \end{cases}$

$[xy]_- \equiv y - x[2]$ Are orthogonal and obey Hadamard's transformation.

$[xy]_+ \equiv x + y[2]$ Commute if (x: even and y: even)or (x:odd and y:odd), which means the super-commutator obeys the Super Jacobi identity.

$-$ *in the field* $\mathbb{Z}/_{7\mathbb{Z}}$

$[xy]_- \equiv 2(x - y)[7]$ and $[xy]_+ = 11(x + y) \equiv 4(x + y)[7]$

xy, yx ***commute in those fields if*** $\boldsymbol{x = y}$ ***and aniticommute if*** $\boldsymbol{x = -y}$

$-$ *In the Fields* $\mathbb{Z}/_{5\mathbb{Z}}$:

$[xy]_- \equiv y - x[5]$ *and* $[xy]_+ \equiv x + y[5]$ Are orthogonal and obey Hadamard's transformation.

Have as solution *in the field* $\mathbb{Z}/_{5\mathbb{Z}}$ the pairs: (1,4), (1,6), (2,7), (3,8),(9,4) and (2,3) in which oscillate respectively the circles:

$C_{13}, C_{17}, C_{37}, C_{73}, C_{97}, C_{53}$ *by relation*: $\forall\ (x,y), x^2 + y^2 = (x + iy)(x - iy) = r^2 \rightarrow C_{r^2}$, with r^2 a prime that split relatively to $\mathbb{Z}[i]$.

Those circles have important property since the primes 13, 17, 37 and 79 are the only primes in the set $M_n = \{1,2,3, \ldots \ldots, 99\}$ with super-partner '' inverse image'' a prime.

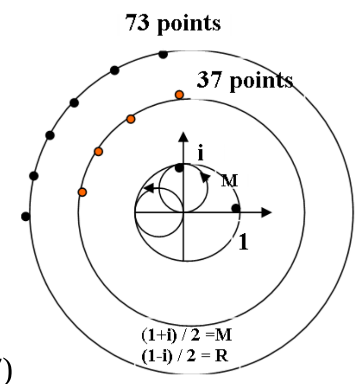
Interpretation Physic: P/P (prime / Prime) generates the gravity G, while when the

magnetic dipole is neutral (absence of charges) the gravity is very important.
The universe is closed and interchanges matter through the axis through the black-holes induced by gravity. Where the axis represents the backbone chain that bonds and holds the multi-verse represented by " Dark matter ". See later **Dark Matter** properties.

Flows of $\mathbb{Z}/_{11\mathbb{Z}},\ \mathbb{Z}/_{9\mathbb{Z}},\mathbb{Z}/_{7\mathbb{Z}},\mathbb{Z}/_{5\mathbb{Z}},\mathbb{Z}/_{2\mathbb{Z}}$ $\boldsymbol{related\ to\ the\ Gravity\ G}$:
We should resolve the **quadratic equation** relatively to **Gravity G** represented by **G=37:**
$\forall\, \boldsymbol{x}, \boldsymbol{y}\ \ \boldsymbol{xy} \pm \boldsymbol{yx} \equiv \boldsymbol{x} \pm \boldsymbol{y}[\boldsymbol{p}]\ \boldsymbol{with}\ \ \boldsymbol{p} = \mathbf{2}, \mathbf{5}, \mathbf{7}, \mathbf{9}, \mathbf{11}\ \ \ \boldsymbol{then\ the\ quadratic}\ \ \boldsymbol{x}^{\mathbf{2}} + \boldsymbol{y}^{\mathbf{2}} \equiv \mathbf{0}(\mathbf{37})$.

Resolution:
$\boldsymbol{x}^{\mathbf{2}} + \boldsymbol{y}^{\mathbf{2}} \equiv \mathbf{0}(\mathbf{37})$ **has as solution** $\boldsymbol{x}^{\mathbf{2}} + \boldsymbol{y}^{\mathbf{2}} = \mathbf{0},\ \ \mathbf{37}\ \mathbf{0}\boldsymbol{r}\ \mathbf{74}$

1- **Case:** $\boldsymbol{x}^{\mathbf{2}} + \boldsymbol{y}^{\mathbf{2}} = \mathbf{0}.$ With $\boldsymbol{y}^{\mathbf{2}} = 1 \rightarrow (x, y) =\ (\pm i, \pm 1)$ or $i^n =< i >= \{i, -1, -i, 1\}$
With period equals to 4. Known by U(1), the circle group unity, the multiplicative group of all complex numbers with absolute value 1, used to represent bosonic symmetries.
In the complex set / $z = x + iy\ the\ module\ \left|\frac{x}{r}\right|^2 + \left|\frac{y}{r}\right|^2 = 1\ and\ the\ points\ \ \pm\frac{x}{r}$ and $\pm\frac{y}{r}$ are the 4 points that intercepts the lines $x = \pm y$ and the circle unity. From $\frac{1}{r^2}(x^2 + y^2) = 1 \rightarrow we$ recognize here the inverse square law of physics related to intensity, force, quantity and potential which is proportional to the inverse square of the distance in such phenomenal physics from sound, radiation, magnetism, electric and also in the Newton's force of gravity.



(Fig.17)

The spin of a discrete number has the same properties as the spin of a particle, related to the quadratic equation $\boldsymbol{X}^{\mathbf{2}} + \boldsymbol{Y}^{\mathbf{2}} = \boldsymbol{r}^{\mathbf{2}}$: the expected value in probability theory coincide with the notion of the mean value for discrete numbers. These formulations are considered to be useful to determine Time's properties, gravity's phenomena and quantum circuit path.

Timer or Counter:
This property of circle unity shows the vector unit, spans a period equal 4 with a total span equals to $\left(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}\right) = 2$, which characterizes the span of the graviton. The continuity of its span, results in a state without equilibrium which proves the continuity of the particle's vibration, due to the orbital periodic of the graviton, by Bertrand's theorem, the force, $F(r) = -k/r^2$ is the only possible central force field with stable closed orbits. We will be showing now that the graviton is the counter for the atomic clock:
When the circle 73 moves from one of its point to another, the circle 37 moves with one turn, when the circle 73 maps all the 73 points (there is 72 equidistant paths), then the circle 37 made $37\ \times\ 72\ turns = 2664$. While the circle unity spins $4 \times 1/2\ \times\ 36 = 72$ (that when the circle 37 maps the 37 points, with 36 equidistant paths), i describes 18 circles since its period=4. The period orbital equal to 72.

Note: total number of primes excluding 2,3,5,7,11,13,17 is equal to 18 primes left in $M_{99} = \{1,2,3, \dots .99\}$ (See later distribution of primes)

Conclusion: the graviton is the counter of Time. The graviton is related to the circle unity U(1) phase of transformation which is the counter that describes the orbital period of the multi-verse. The gravity results from the space/time curvature, while (1,6) are elements that create the gravity, we notice 1 is related to time and 6 is related to space (see later dynamical of space).

2- **Case:** $\boldsymbol{x^2 + y^2 = 37}$, $\boldsymbol{while}$ $1, 6$ *are radius respectivly mean value of* $(5, 7)$.

Indeed $\binom{7}{5} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \binom{6}{1} = \sqrt{2}\mathrm{H}\binom{6}{1}$ with $\mathrm{H}=\frac{1}{\sqrt{2}}\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$ *the Hadamard Matrix.*

Then $(\boldsymbol{x}, \boldsymbol{y}) = (\boldsymbol{6}, \boldsymbol{1}) \rightarrow \boldsymbol{6} + \boldsymbol{1} \equiv \boldsymbol{0}[\boldsymbol{7}\ ]$ $in\ \mathbb{Z}/_{7\mathbb{Z}}$, $\boldsymbol{and}\ \boldsymbol{6} - \boldsymbol{1} \equiv \boldsymbol{0}[\boldsymbol{5}]\ \boldsymbol{in}\ \mathbb{Z}/_{5\mathbb{Z}}$

3- **Case:** $\boldsymbol{x^2 + y^2 = 74}$ **its solution is related to** $\mathbb{Z}/_{2\mathbb{Z}}$ since $7 \pm 5 \equiv 0[2]$.

Note 74 represents the wormhole, once you pass 73 then you are no more in the event horizon.

$(1,6) \rightarrow$ *is the superpartner image of* $(10,60)$, *we know*: $1^2 + 6^2 = 37$

While 37 represents the gravity relatively to the singularity 55.

Or : $10^2 + 60^2 = 100 \times 37 and\ 2664 + 4662 + 74 = 2 \times 100 \times 37$

Space + Time + wormhole= twice ($10^2 + 60^2$) (*double flux cone*))

Conclusion: Image of a black hole is the wormhole.

The notion of congruence modulo p is a very important concept that describes the flows of particles related to the gravity G=37. To filter my system, I have to stick with gravity properties since it is the generator and the connector of the universe.

Quantum Circuit: Let's denote the flows of the ring $\mathbb{Z}/_{9\mathbb{Z}}$ and fields $\mathbb{Z}/_{11\mathbb{Z}}$, $\mathbb{Z}/_{7\mathbb{Z}}, \mathbb{Z}/_{5\mathbb{Z}}, \mathbb{Z}/_{2\mathbb{Z}}$ by $\boldsymbol{F_{11}}, \boldsymbol{F_9}, \boldsymbol{F_7}, \boldsymbol{F_5}, \boldsymbol{F_2}$, which are kind of transformers or generators or just logical gates.

Since $xy + yx \equiv 0[p]$ *corresponds to* $p = 11, 7, and\ 2 \leftarrow$ Fermions (anti-commute)
And $xy - yx \equiv 0[p]$ *corresponds to* $p = 9, 5, and\ 2 \leftarrow$ Bosons (commute)
We have then the following diagram of the flows for the system: $\boldsymbol{F_9} \leftrightarrows \boldsymbol{F_5} \leftrightarrows \boldsymbol{F_2} \leftrightarrows \boldsymbol{F_7} \leftrightarrows \boldsymbol{F_{11}}$

As a result, the resulting block gates for input and output are equal:

$$11 - 7 = 9 - 5 .$$

In quantum circuits, Hadamard gates are represented by:

$$\boldsymbol{x} \mid \boldsymbol{0} > +y \mid 1 > \rightarrow x \frac{\mid \boldsymbol{0} > + \mid 1 >}{\sqrt{\boldsymbol{2}}} + \boldsymbol{y} \frac{\mid \boldsymbol{0} > - \mid 1 >}{\sqrt{\boldsymbol{2}}}$$

The transformation $\boldsymbol{F_9} \leftrightarrows \boldsymbol{F_5} \leftrightarrows \boldsymbol{F_2} \leftrightarrows \boldsymbol{F_7} \leftrightarrows \boldsymbol{F_{11}}$ is reversible with harmonic motion, due to the orbital periodic of the particles. Since it is a flow of particles we can then introduce the notion of quantum circuit in which a computation is a sequence of quantum gates with a reversible transformation, that imply the inverse quantum Fourier transform.

If we consider the qubits of the **input** equal to n= 9 - 5= 4 and for the **output** the qubits equal to m=11 – 7 = 4 and the qubits for the logical gates K = 2 in the middle, then the resulting circuit operates with: $\boldsymbol{n + m - k = 4 + 4 - 2 = 6}$ $\boldsymbol{qubits.}$

With block length $n = 2^r = 2^6$, and a **message length equals to:** $r = 6$, with a minimum distance that correspond to $d = 2^5$. This linear code over a binary alphabet $[n, r, d]_2$ is a subspace of dim 6 of length 64 generated through the reversible transformation of fields $\boldsymbol{F_9} \leftrightarrows \boldsymbol{F_5} \leftrightarrows \boldsymbol{F_2} \leftrightarrows \boldsymbol{F_7} \leftrightarrows \boldsymbol{F_{11}}$**.**

For a 6 qubits reversible gate data in the space $\{0,1\}^6$which consists of $2^6 = 64$ strings of 0 and 1, the input and output each consists of $2^4 = 16$.

This transformation results from a transmission of 16 strings into 64 strings .

The architecture of the universe is based on a quantum circuit path reversible consisting of a transmission of 16 strings into 64 strings for the automata language, those strings are represented by vertices and edges in graph theory, see (Fig.18)
This transformation is a consequence of the Hadamard's matrix order since:

$$H_1 = 1 \quad H_2 = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \quad H_4 = \begin{pmatrix} H_2 & H_2 \\ H_2 & -H_2 \end{pmatrix} = \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & -1 & 1 & -1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & -1 & 1 \end{pmatrix} \textit{with } 16 \textit{ elements}$$

and $H_8 = \begin{pmatrix} H_4 & H_4 \\ H_4 & -H_4 \end{pmatrix}$ with 64 elements.
Numerically this transformation describes the path of the composite and the prime numbers relatively to their super-partners "Mirror image"! (See Knot Theory below) Since in the set $M_n = \{1,2, \dots 99\}$ the total number of:

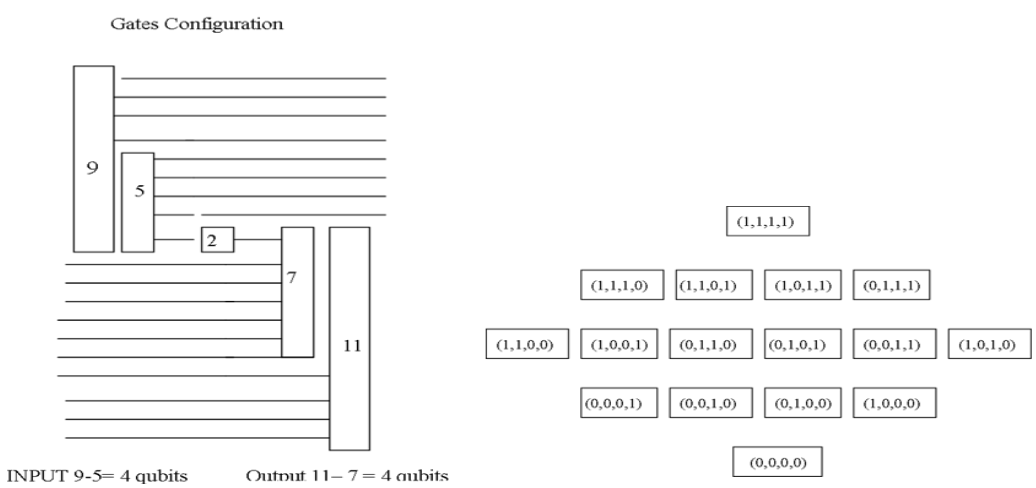
- P/C (primes/composites) = 16/16.
- C/C (composites /composites) = 24 /24.

Then for each reversible path we have: 16 + 24 +24 = 64 in total.
While inside the system the:

- P/P (primes/primes) generates the gravity.

The particles will commute or anti-commute to form the axis:

- $\Delta_{ii} = \{11, 22, \dots 99\}$ (Kernel).
- **Gates / Wormholes:**
- This map is connected to Pascal's Triangle by:
- $T_{n-1} = \frac{n(n-1)}{2}$ number of gates (Hadamard and controlled phase gates)
- And for $n = 6$ *it corresponds to*: $T_5 = 15$ *gates* (total of **wormholes** in the multi-verse) This property coincide exactly with the total composites of 15 orbiting around the 7 primes coordinates of the point M(2,3,5,7,11,13,17) of the sphere S_{666}''See dynamical of the space''
- **Conclusion**: The architecture of the universe is based from a quantum data information circuit with the resulting path of 6 qubits for the automate language. The universe is generated from a super-computer: That codes, decodes and corrects code errors through the Hadamard operator. Do we live in a real simulated life?



(Fig.18) (4th line in Pascal's triangle 1+4+6+4+1=2^4)

Quantum Harmonic oscillations:

The Schrödinger Equation for quantum Harmonic Oscillations is $a\ \Psi_n$ wave function related to Pascal's Triangle: since Ψ_n is connected to Hermite Polynomials $\boldsymbol{H_n}$ by the relation:

$\boldsymbol{\Psi_n(x) = K_n \,.\, H_n(\beta x)}$. Where $\boldsymbol{K_n} = \sqrt{\frac{\mathbf{1}}{\mathbf{2^n \times n!}}} \,.\, ((\boldsymbol{m.\omega})/(\boldsymbol{\pi}.\hbar))^{\frac{1}{4}} \,.\, \boldsymbol{e}^{\frac{-m.\omega x^2}{2\hbar}}$ $\quad \boldsymbol{and\ \beta} = \sqrt{\frac{\boldsymbol{m.\omega}}{\hbar}}$

$\boldsymbol{H_0}$	1								
$\boldsymbol{H_1}$		$2x$							
$\boldsymbol{H_2}$	$-2^1 \times 1$		$+2^2x^2$						
$\boldsymbol{H_3}$		$-2^2 \times 3x$		$+2^3x^3$					
$\boldsymbol{H_4}$	$2^2 \times 3$		$-2^3 \times 6x^2$		$+2^4x^4$				
$\boldsymbol{H_5}$		$2^3.\,15x$		$-2^4 \times 10x^3$		$+2^5x^5$			
$\boldsymbol{H_6}$	$-2^3 \times 15$		$+2^4.\,45x^2$		$-2^5 \times 15x^4$		$+2^6x^6$		

We notice that The coefficients of the Hermite polynomial H_n are represented by $\boldsymbol{E_n} = 2^n$, *and* $\boldsymbol{T_n} = \frac{\boldsymbol{n(n+1)}}{\mathbf{2}}$.

Although we know from Pascal's triangle the power 2^n is giving by:

From the binomial theorem we have: $2^n = (1+1)^n = \sum_{k=0}^{n} \binom{n}{k} 1^k 1^{n-k} = \sum_{k=0}^{n} \binom{n}{k}$.

Giving a discrete number p, we have: (p+ (1-p)) =1 with $P(n,k) = \frac{\binom{n}{k}}{2^n}$

Then: $((p+(1-p))^n = \sum_{k=0}^{n} \binom{n}{k} p^k (1-p)^{n-k} = \sum_{k=0}^{n} \mathrm{P(n,k)} = 1 = \sum \mathrm{P_r}\ (\mathrm{X})$

Related to a discrete probability distribution of a random variable X, characterized by a probability mass function, also known by the normalization condition for a wave function $\Psi(n,k)$.

Where $|\Psi(n,k)|^2 = \mathrm{P(n,k)}$ and $\Psi(n,k) = \sqrt{\mathrm{P(n,k)}}\, e^{i\alpha(n,k)} = \frac{\binom{n}{k}^{\frac{1}{2}}}{2^{\frac{n}{2}}} e^{i\alpha(n,k)}$

Invariance under Translation:

$$(xy+d)-(yx+d) = 9\big((x+d)-(y+d)\big) = 9(x-y) = xy - yx = [xy]$$

And $\frac{xy-yx}{x-y} = \frac{R}{r} = \mathbf{9} = \left(\frac{\boldsymbol{f(x,y)-f(y,x)}}{\boldsymbol{(x-y)}}\right) = \frac{\boldsymbol{\partial f}}{\boldsymbol{\partial X}}$ *with* $f(x,y) = xy$ *and* $\partial X = x - y$

The rapport corresponds to the deviation of xy and yx divide the deviation of x and y.

Conclusion: Invariance under translation results in the **conservation of momentum.**

If 9 is the angular momentum then 73 composite numbers map: with $2\pi = 360^\circ$

$72 \times 9 = 666 - (6+6+6) = 648 \equiv 288[2\pi]$. We will later define the number 288

Geometrical Shape:

Since 666 represent the sphere S_{666}, or 666=18x37 $\rightarrow S_{666}$ *and* S_{18} *have the same axis.*

Or $18 \times 36 = 648$ *and* $648 = 666 - 18 \rightarrow S_{648} = S_{666} - S_{18}$,

Conclusion: S_{648} represents a torus.

For $M_n = \{1,2,3,\ldots\ldots,99\}$ each element corresponds to 6 components (3 upcoming and 3 outgoing) (See Fig.6). If we count only the outgoing spins, then we compute a total:

$99 \times 3(outgoing) \times 9(Angular\ Momentum) = 297 \times 9 = 33 \times 81 = 2673 = 2664 + 9$.

Since the last number has only two connections then the total is: 2673 – 9 = 2664. (See Fig.19)

Or $2664 = 4 \times 666 = 72 \times 37$ *represents the period* of Time, it represents also the period of Space when M (2,3,5,7,11,13,17) maps the entire sphere S_{666}.

Since the surface of the hyper-sphere $S_{666} = S_{r^2} = 4\pi r^2 = 4 \times 666 \times \pi = 2664\pi$

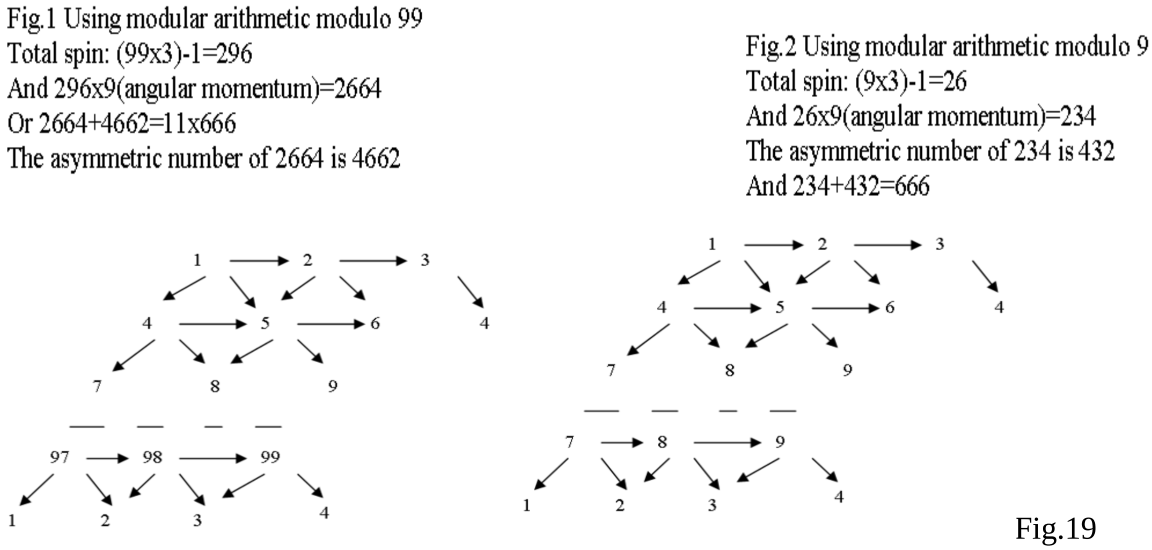


Fig.19

Resolution of the Equation:

If $xy = 4662$ and $yx = 2664$ Then: $xy - yx = 9(x - y)$ and $xy + yx = 11(x + y)$

Then the solution of this equation is the pair$(x, y) = (444, 222) \rightarrow x$, y are palindromes.

Representation of Triangular Numbers:

For $\boldsymbol{n \geq 1}$, $\boldsymbol{T_n} = \frac{n(n+1)}{2} = 1 + 2 + 3 \ldots. +$n. Geometrically T_n represents the total number of tours: when the n^{th}circle turns1 time the 1^{st}circle turns n times, with an arithmetic progression equals to 1 tour between two successive circles.

Special Triangular Numbers and notion of Cardinality:

In the set $M_n = \{1,2,3, \ldots \ldots, 99\}$ we have 25 primes , 73 composites and number 1.

The Special Triangular Numbers correspond to the orbital of the 25 prime numbers and the 73 composite numbers. Card P(primes) = 25 and Card C(composites) = 73

If we enumerate the set of primes $P = \{2,3,5,7,11,13 \ldots \ldots, 97\}$ by $P_{25} = \{1,2,3,4 \ldots \ldots \ldots, 25\}$

The same for composite numbers $C = \{4,6,8,9 \ldots..98\}$ by $C_{73} = \{1,2,3 \ldots \ldots..73\}$.

From the property of the cardinality there exist a bijection between the set

P and P_{25} $respectively$ $between$ C and C_{73}.

The primes and composites represented as objects or mathematical entities.

$$\text{With} \begin{cases} 666 = 18 \times 37 \\ 4 \times 666 = 72 \times 37 \\ 288 = 4 \times 72 \end{cases}$$

Very Important:

$$T_{99} = \sum_{i=0}^{99} i = 4662 + \mathbf{288} = 7 \times 666 + 288 \equiv 7 \times 666[72]$$

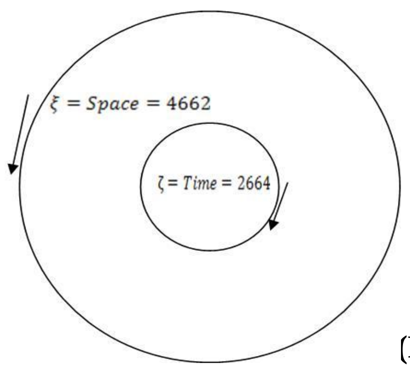
$$T_{73} = \sum_{i=0}^{73} i = 2664 + \mathbf{37} = 4 \times 666 + 37 \equiv 37[72]$$

$$\equiv 0[37]$$

And $T_{25} = \sum_{i=0}^{25} i = \mathbf{288 + 37}$

Then $T_{73} - T_{25} \equiv 0[72]$

$T_{99} + T_{73} - T_{25} = \ 11 \times 666 \ \equiv 0[666]$
$Or \ \ 666 = 2^2 + 3^2 + 5^2 + 7^2 + 11^2 + 13^2 + 17^2$ (Equation of a Hyper-Sphere, with radius r)
r = $\sqrt{666}$, and $[r] = \left[\sqrt{666}\right]$=25. The points 2,3,5,7,11,13,17 are seven consecutive primes and are coordinates of a point M(2,3,5,7,11,13,17) of the hyper-sphere $S_{666} = Sphere\ 666$.
Conclusion: The dynamical of the primes and composites is related to the Hyper-SphereS_{666}. While the primes and composites are orbiting, they are mapping $S_{666}\ through\ the\ point\ M$.
Interpretation: My system is based from the following parameters:
$\xi = 4662$, $\zeta = 2664,\ M_{99} = \{1,2 \dots ,99\}$, $\Delta_{ii} = \{11,22,..,99\}$, $P = primes,\ G = 37$
$C = Composites$, $Q = 288,$ $S_{666} = Sphere\ 666$ $E_n and\ T_n\ with\ 0 \leq n \leq 99$
Physical System:
Let's denote by:
$\xi = Space = 4662 = 7 \times 666$
$\zeta = Time = 2664 = 4 \times 666 = 37 \times 72$
$Q = Dark\ Matter = 288$
$M_{99} = Matter\ represented\ by\ the\ elements\ of\ the\ table\ periodic$
$E_n = Energy = 2^n$, $(n\ represents\ energy\ state\ level)$
$G \ = \ Gravity = 37\ (\ Event\ Horizon)$
$W = \ Wormhole = 74$



(Fig.20)

Note: Those Triangular sequences show important relations between: Space/Dark Matter, Time/Gravity, and Dark Matter/ Gravity
$T_{99} = \sum_{i=0}^{99} i = 4662 + \mathbf{288} \equiv \mathbf{0}[\mathbf{18}] \rightarrow Related\ to\ \boldsymbol{space}\ and\ \boldsymbol{dark\ matter}$

$$T_{73} = \sum_{i=0}^{73} i = 2664 + \mathbf{37} \equiv \mathbf{0}[\mathbf{37}] \rightarrow Related\ to\ \boldsymbol{time}\ and\ \boldsymbol{gravity}$$

$T_{25} = \sum_{i=0}^{25} i = \mathbf{288} + \mathbf{37} \rightarrow Represents\ \boldsymbol{dark\ matter}\ and\ \boldsymbol{gravity}$
We will prove later that the counter of time is generated from the gravity, while the dark matter feeds and holds the gravity from collapsing.
The system $S = \{Space, Time, Matter, Energy, Gravity\} = \{\xi, \zeta, M_n, E_n, G\}$ is homogenous, with parameters $(Primes, Composites, Palindromes\ ) = \ (P, C, \Delta_{ii})$
$\xi = Space = 4662$
$\zeta = Time = 2664$
Since $\xi\ is\ \zeta\ are\ transpalindromes,\ and\ \zeta\ \leq\ \xi$
Space and Time are asymmetric.
As a result, I based from this system for the construction of the theorem and the equation of everything.

Salahdin Daouairi 's Theorem or Equation of Everything is defined as:

Giving a set $M_{99} = \{1, 2, 3 \ldots, 99\}$ *bounded by an hyperSphere* S_{r^2} and a set of points $(\rho_1, \rho_2, \rho_3, \rho_4, \rho_5, \rho_6, \rho_7)$ in $\mathbb{R}^7$satisfying: $\sum_{i=1}^{7} \rho_i^2 = r^2$
Let's denote by r the Salahdin Daouairi 's radius of the hyper-sphere S_{r^2} , with $r^2 = 666$
Such that: $2 \le \rho_i < [r] - 6$ And ρ_i *consecutive primes*.
Then a fortiori the dynamical system of M_{99} and S_{r^2} defines the equation of everything.

Interpretation of the Theorem:
This theorem will prove how the dynamics of the particles in the universe, define the equation of time and space, speed of light and other physical properties of the universe.
Equation of Strings in Knot Theory / Conway Polynomial
Orbital of P, C, Δ_{ii}(*Primes*, *Composites*, *Palindrome numbers*) :

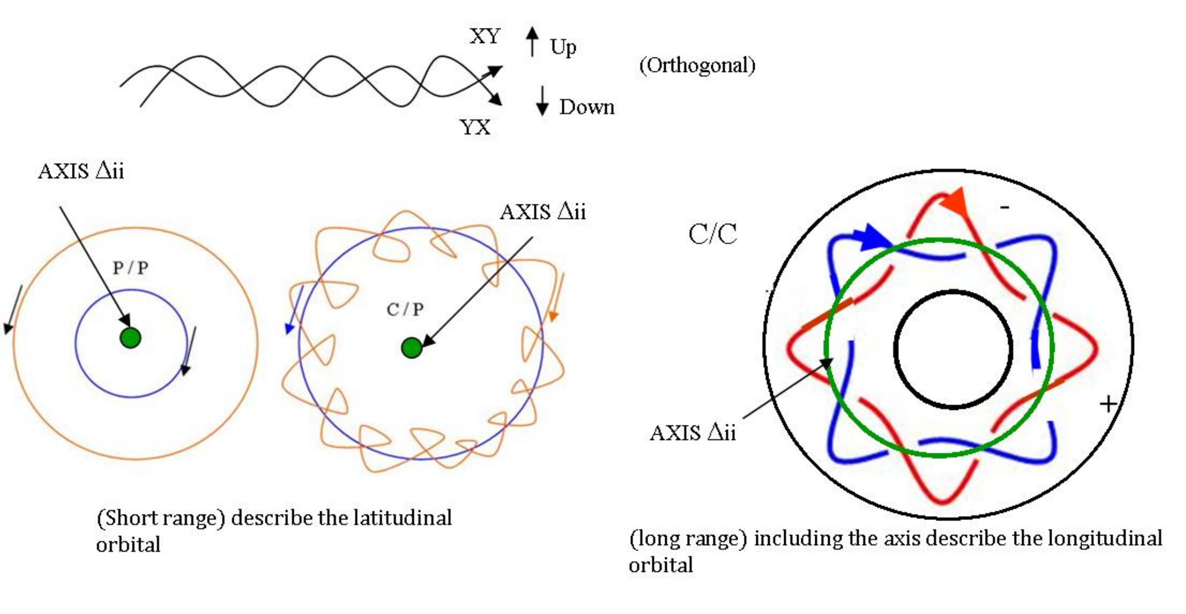


Fig.21 (closed strings Short range and long range)
I will be doing a detailed study of the transpalindrome numbers with their super-partners in the set M_{99}={1,2,3 … ,99}
There exist 3 representation types of transpalidrome numbers (see Fig.21)
-Primes with their super-partners primes P/P, are the type non decomposable.
P/P={(13,31), (17,71), (37,73), (79,97)} with 4/4 elements of M_{99}.
-Primes with their super-partners composites P/C =16/16 elements
-Composites with their super-partners composites C/C = 24/24 elements and remaining numbers are 1, 10, 11 and *Palindrome numbers* 22,33 … . ,99 with a total of 11 elements
Let's consider an involution function, which maps a point x to y and y to x, defined by:

$$I = \{1,2, \ldots 9\} \to I \qquad x \to f(x) = y$$

f bijective since f is a symetric transformation, and $f^2(x) = x$.
f is a diffeomorphism, this dynamical function maps x to y with respect to its trajectory $xf(x)$. This string xy corresponds to the algebraic number
$xy = y + 10x$ *in base ten*. With $xy \neq yx$ *then* $xy < yx$ *or* $xy > yx$
The two strings xy and yx are chiral symmetric and intercept to form a closed string.
Three possibilities of interception: 0 knot, 1 knot, or a link of n knots.

- 0 knot which corresponds to P/P (prime/prime) where xy *and* yx have their greatest common factor equal to 1, $\mathrm{GCF}(xy\,,yx)=1$ and are not decomposable.

In this case we have two closed strings with opposite directions with shapes of circles.

- For a link with 1 knot which corresponds to P/C (Prime/Composite), the Greatest Common Factor is equal to 1, $\mathrm{GCF}(xy\,,yx)=1$ and only yx is decomposable, this case corresponds to the composites orbiting around the primes with opposite direction to it.
- For the third possibility we will consider a **torus link** $(\boldsymbol{n},\mathbf{2}\ )$ formed from the 2 strings intercepting n times (n=6 smallest period of the sequences seen before) which corresponds to C/C (composite/composite), for this reason, let's introduce the **Conway Polynomial** and show how it is related also to Pascal's Triangle, where the 2 strings are twisted 6 times with characteristic 2(modulo 2 with n odd or even), then: $\nabla(P_{2n})and\ \nabla(P_{2n+1})\ either\ its\ a\ link\ or\ a\ knot, by\ definition\ the\ Conway\ polynomial$ is giving by the equation: $\nabla(P_n)=\nabla(P_{n-2})+z\nabla(P_{n-1})\ for\ n\geq 3$

	$\sum coefficients$						F_n
$\nabla(P_1)$	1						1
$\nabla(P_2)$		1z					1
$\nabla(P_3)$	1		$1z^2$				2
$\nabla(P_4)$		2z		$1z^3$			3
$\nabla(P_5)$	1		$3z^2$		$1z^4$		5
$\nabla(P_6)$		3z		$4z^3$		$1z^5$	8

Fig.22

We recognize the Pascal's triangle patterns, where Fibonacci numbers represent the sum of the coefficients of the polynomials for z =1.

Since for n =6 the polynomial is of deg 5, the Space then is of dimension 5, which coincide also with 5-Simplex dimension.

composites/composites C/C = 24/24 elements of M_{99}. Those elements have the property of longitudinal orbit along the torus that describes a spiral of Fibonacci trajectory.

Since the torus links P_n *depends on the parity of* n, ($knot\ or\ link$) *with*:

$$\nabla(P_{2n})_{z=1}=\sum_{i=0}^{n-1}\binom{n+i}{2i+1}\ and\ \nabla(P_{2n+1})_{z=1}=\sum_{i=0}^{n}\binom{n+i}{2i}$$

Introducing the Fibonacci sequence: $F_n\ with\ F_n=F_{n-1}+F_{n-2}\ and\ F_1=1\ and\ F_2=1$

Where: $\nabla(P_1)_{z=1}=1\,,\nabla(P_2)_{z=1}=1$ and the relation $\nabla(P_n)_{z=1}=F_n$

We can show easily by using the formula: $\binom{n}{k}=\binom{n-1}{k}+\binom{n-1}{k-1}$

Since (n-1) and (n-2) are consecutive with different parity !

This leads to: $\nabla(P_{2n})_{z=1}=F_{2n}$ and $\nabla(P_{2n+1})_{z=1}=F_{2n+1}$

Interpretation: The notion of parity (odd or even) is an indication of the commutation and the anti-commutation of the bosons and fermions over the Super Algebra $\mathbb{Z}_2$. While the particles C/C (long range) including the axis $\Delta_{ii}(the\ Kernel)$ describe the longitudinal orbital, and the particles P/P and P/C (Short range) describe the latitudinal orbital, thus the longitudinal and the latitudinal orbits define the geometrical shape of the Space/Time, which is a twisted torus (Solenoid) that describes a spiral of Fibonacci trajectory that converges into the golden ratio $\varphi=\frac{1+\sqrt{5}}{2}$.

Numerical Flow:

Giving the Matrix M=$\begin{pmatrix} 1 & 2 & 3 \\ 4 & \mathbf{5} & 6 \\ 7 & 8 & 9 \end{pmatrix}$. The matrix M is singular since Det M=0 (has infinity of solutions) with eigen-value equals zero.

P/P can be found by joining 1 to (3 and 7) and 7 to (9 and 3).

We can construct the transpalindrome numbers and their super-partners in M_{99}, by easily joining two element of M. For this reason I will be doing a simple transformation of M to study M_{99}={1,2,3 … ,99}.

let's denote M^t *transpose of* M. Then $M^t = \begin{pmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \\ 3 & 6 & 9 \end{pmatrix}$

If I align and combine the elements of M *and* $M^t$and *since* $xy, yx, x,$ *and* y *are connected by the equation* $xy - yx = 9(x - y)$

1	2	3	4	5	6	7	8	9
1	4	7	2	5	8	3	6	9
11	24	37	42	55	68	73	86	99

The new matrix M'=$\begin{pmatrix} 11 & 24 & 37 \\ 42 & \mathbf{55} & 68 \\ 73 & 86 & 99 \end{pmatrix}$

leads to the following characteristics:

55 is a symmetry center

37 located in the **third** column and **third** row!

If we multiply the two numbers 24 and 42 by 3x37=111

24 and 42 are two transpalindrome numbers:

24= 4x6 → 24x3x37=4x18x37=4x666 correspond to $\zeta = 2664$

42=7x6 → 42x3x37=7x18x37=7x666 correspond to $\xi = 4662$

Transformation of M to M':

Through the diagonals of M and M', let's denote by $I = [1,9]$ and $I' = [11,99]$ two closet sets of integers, we notice that the number 10 is missing to complete M_{99}. Or 10 is the mirror image of the number 1.

In this transformation the diagonal $\Delta' = \{1, 5, 9\}$ *of* M and the diagonal $\Delta'' = \{11, 55, 99\}$ *of* M' *are multiple of* 5, 9 *and* 11.

Origin of The Gravity:

Flow of 5, 9 and 11 in M_{99}={$\mathbf{1, 2, 3}$ … , $\mathbf{99}$} :

Transpalindrome numbers with their super-partners through the diagonal Δ_{ii}.

55 is the mean value or the symmetric center of Δ_{ii}.

The value of the mean value B of all the numbers of M_{99}={$\mathbf{1, 2, 3}$ … , $\mathbf{99}$} excluding the diagonal is $\frac{99}{2}$. To connect the matrix M to M', we need to complete the matrix M by adding 10 which is the super-partner of 1 to the diagonal through 11.

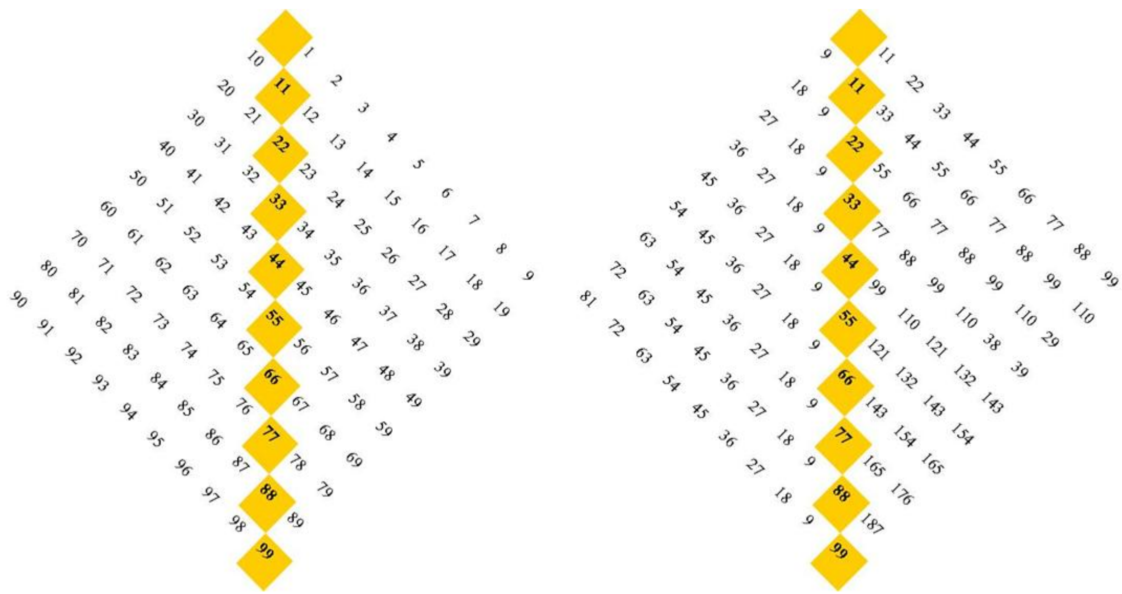
To cover the new elements we need a square 4x4 matrix with number 11 on the diagonal:

Since 11=10+1=9+2=8+3=7+4=6+5

$$\boldsymbol{M_{4\times4}} = \begin{pmatrix} \mathbf{11} & \mathbf{1} & \mathbf{2} & \mathbf{3} \\ \mathbf{10} & ! & \mathbf{4} & \mathbf{5} \\ \mathbf{9} & \mathbf{7} & ! & ! \\ \mathbf{8} & \mathbf{6} & ! & ! \end{pmatrix}$$

There are five empty positions in this matrix $\boldsymbol{M_{4\times4}}$, to have a continuity of the elements of M_{99}={1,2,3,..99}, the numbers must oscillate back and forth automatically in harmonic motion. Two major flows of 11 and 9 fill those gaps automatically in connection with the flows 5,7 and 2. Flow 5, 7 and 2 are kind of transformers or generators.

$$\boldsymbol{F_9} \leftrightarrows \boldsymbol{F_5} \leftrightarrows \boldsymbol{F_2} \leftrightarrows \boldsymbol{F_7} \leftrightarrows \boldsymbol{F_{11}}$$



Flow9 **Flow11**

(Fig.23)

$$\boldsymbol{xy} \qquad \boldsymbol{yx} \qquad \boldsymbol{xy - yx \equiv 0[9]} \qquad \boldsymbol{xy + yx \equiv 0[11]}$$

Flow 5: From the diagram(Fig.23) we have:

$F_9 \cap F_5 = LCM(9,5) = \{45\}$ And $F_{11} \cap F_5 = LCM(11,5) = \{55\}$

Now let's find the pair of elements x and y of {1,2,3, … 9} which verify: $x \pm y = 5$

5= 4+1→ $(1,4) \rightarrow 1^2 + 4^2 = 17$ *oscillate* circle $C_{r^2} = C_{17}$

=3+2→ $(2,3) \rightarrow 2^2 + 3^2 = 13$ oscillate circle C_{13}

=9 - 4→ $(4,9) \rightarrow 4^2 + 9^2 = 97$ oscillate circle C_{97}

=8 – 3→ $(3,8) \rightarrow 3^2 + 8^2 = 73$ oscillate circle C_{73}

=7 – 2→ $(2,7) \rightarrow 2^2 + 7^2 = 53$ oscillate circle C_{53}

=6 - 1→ $(1,6) \rightarrow 1^2 + 6^2 = 37$ oscillate circle C_{37}

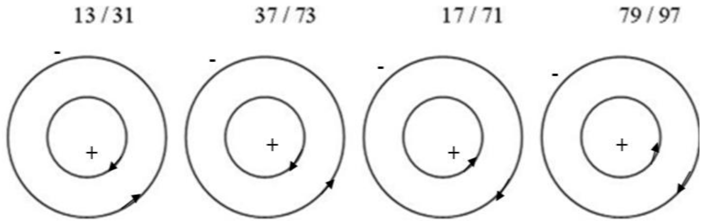
As a result, the transpalindrome primes and their primes partners P/P originate from the flow 5. $\boldsymbol{F_5}$ corresponds then to the gravity.

Note the symmetric of 53 is 35 is not a prime, but it presence is to complete the symmetry and the period. $F_7 \cap F_5 = LCM(7,5) = 35$ *which is the superpartner of* 53.

and $7^2 + 5^2 = 2 \times 37 \equiv 0[74]$, while 74=wormhole.

$$\begin{pmatrix} (31-13)+(71-17)+(73-37)+(97-79)+(53-35) = \\ 18+54+36+18+18 = 144 \end{pmatrix}$$

Notice: the number 144=72x2 represents the period for time, as you know:
60+60+24 = 144 (Is a Fibonacci number) represents 24hr, 60mn, and 60s? Also has the same string or digit numbers as the code 6642. "As a concatenation "



(Fig.24)

$\begin{cases} 13 \equiv 1[4] \\ 31 \equiv -1[4] \end{cases}$ $\begin{cases} 17 \equiv 1[4] \\ 71 \equiv -1[4] \end{cases}$ $\begin{cases} 37 \equiv 1[4] \\ 73 \equiv 1[4] \end{cases}$ $\begin{cases} 79 \equiv -1[4] \\ 97 \equiv 1[4] \end{cases}$

Thus only 31, 71 and 79 are Gaussian prime numbers.

Dynamics of the Flows / Flow F_5: This combination of backward and forward flows is a consequence of the oscillations of the following pairs (1,4), (1,6), (2,7), (3,8),(9,4) and (2,3) which oscillate respectively the circles: $C_{13}, C_{17}, C_{37}, C_{73}, C_{97}, C_{53}$

$\boldsymbol{F_9 \leftrightarrows F_5 \leftrightarrows F_2 \leftrightarrows F_7 \leftrightarrows F_{11} \rightarrow \textit{see circuit quantum path of the system}}$

Harmonic Motion: the system is reversible

Direction → ← Direction

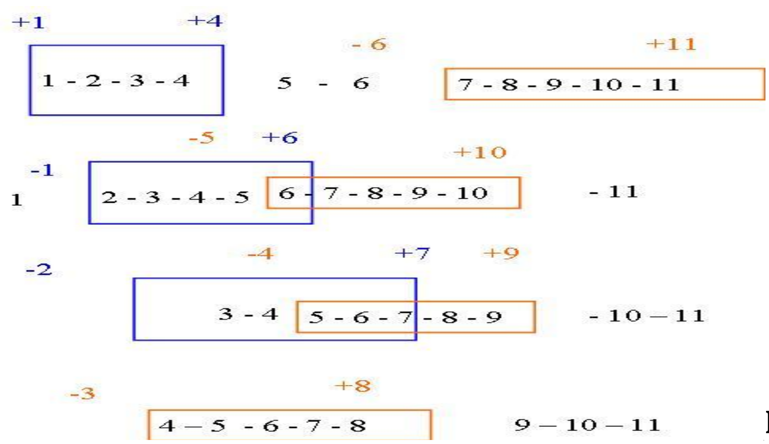
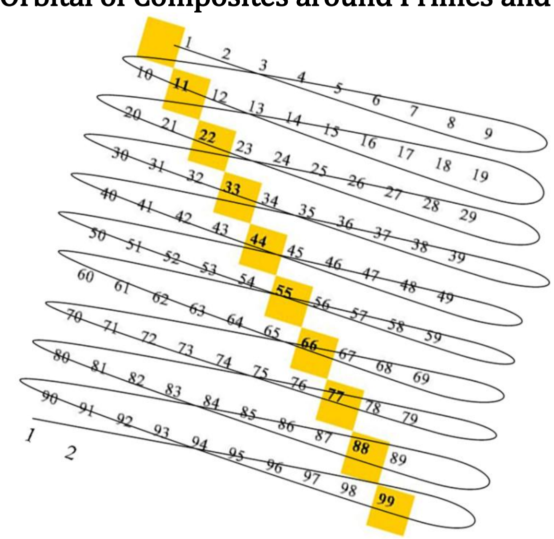


Fig.25)

Orbital of Composites around Primes and Primes around Palindromes Δ_{ii}



(Fig.25A)

Δ_{ii} the diagonal with a curved spiral cylindrical trajectory for the set $\boldsymbol{M_n}=\{\mathbf{1},\mathbf{2},\mathbf{3}\ \ldots,\boldsymbol{n}\}$. It is a closed string if we use modular arithmetic modulo 99, a longitudinal axis for the torus when you connect 1 to 99 of the cylinder, as a result from a transformation that transforms lattice into a torus by folding the lattice into a cylinder and joining its extremities to form the shape of a torus. See (Fig.25A) "$an\ n\ Torus \sim \mathbb{R}^n/\mathbb{Z}^n$".

To prove the orbital of the composites around the primes, we need first to locate the primes of M_{99}, for this reason we need to find a sequence or a function that maps all the 25 primes!

Since each element a_{ij} of δ_i for $1 \le i \le 3$ is connected to δ_{i+1} per **spin+1** or **Spin+4**.

And each element a_{ij} of δ_i is connected to the other element a_{i+1j} of δ_i per **spin+3**.

We have 4= 1+3 and with respect to the orientation we would follow this path: 4 + (-1) = 3

Anti-clockwise: based on the circles $C_{13}\ and\ C_{37}$ (See Fig.26).

Since the pairs (1, 6) and (2, 3) generates those circles. The opposite modules verify well: $(-3)^2 + (-2)^2 = 13$ and $(6)^2 + (-1)^2 = 37$ related to the flow F_5.

Let's then define the following sequences defined by: $u_1 = 1, 2, 3\ and\ 6$ composites of the perfect number 6.

$f(u_1) = u_2 = u_1 + 4 \quad ; \quad f(u_2) = u_3 = u_2 - 1 \quad ; \quad f(u_3) = u_4 = u_3 + 3 = u_2 + 2$

The Salahdin Daouairi's Conjecture:

Show for $u_1 = 1$ the function f maps all the primes $p,\ with\ p > 3$.

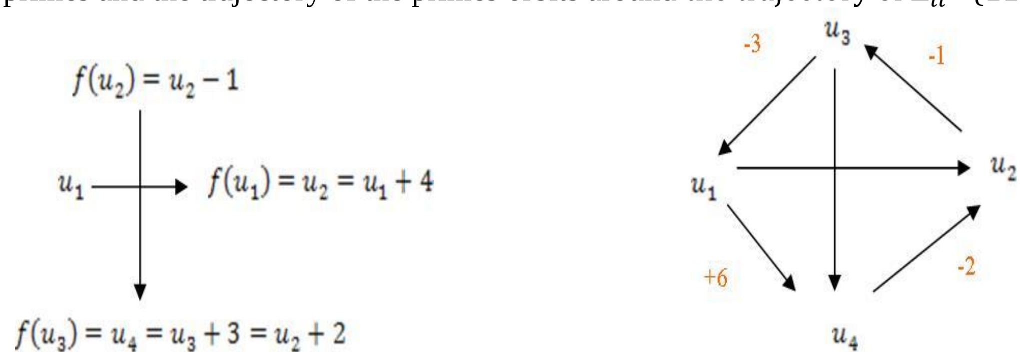
$Definid\ by$: $f(u_1) = u_2 = u_1 + 4 \ ; \ f(u_2) = u_3 = u_2 - 1 \ ; f(u_3) = u_4 = u_3 + 3$

Notice: 1, 13, 37 and73 are the only star numbers of M_{99} with the form: $6n(n-1)+1$.

We have $u_4 \equiv u_1[6]$ or u_1= 1, 2, 3, 6. The diagonal of the sequences is in the form of 6k, 6k+1, 6k+2 and 6k+3. With the value $u_1 = 1$, the sequence or the function maps all the primes(5,7,11,..97) of M_{99}. See **Fig.28**

Connection of the Sequences:

It shows that when we connect the 4 sequences, the trajectory of the composites spins around the primes and the trajectory of the primes orbits around the trajectory of Δ_{ii}={11,22,33,..,99}.



(Fig.26)

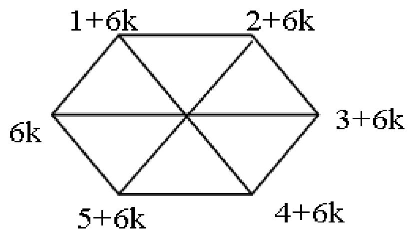
And when we project our sequences to the infinite and by using modulo 99 we get the following transformations: which yield to a twisted torus orbital each number reconnect with its mirror image.

3+6k reconnect with 6k

4+6k reconnect with 1+6k

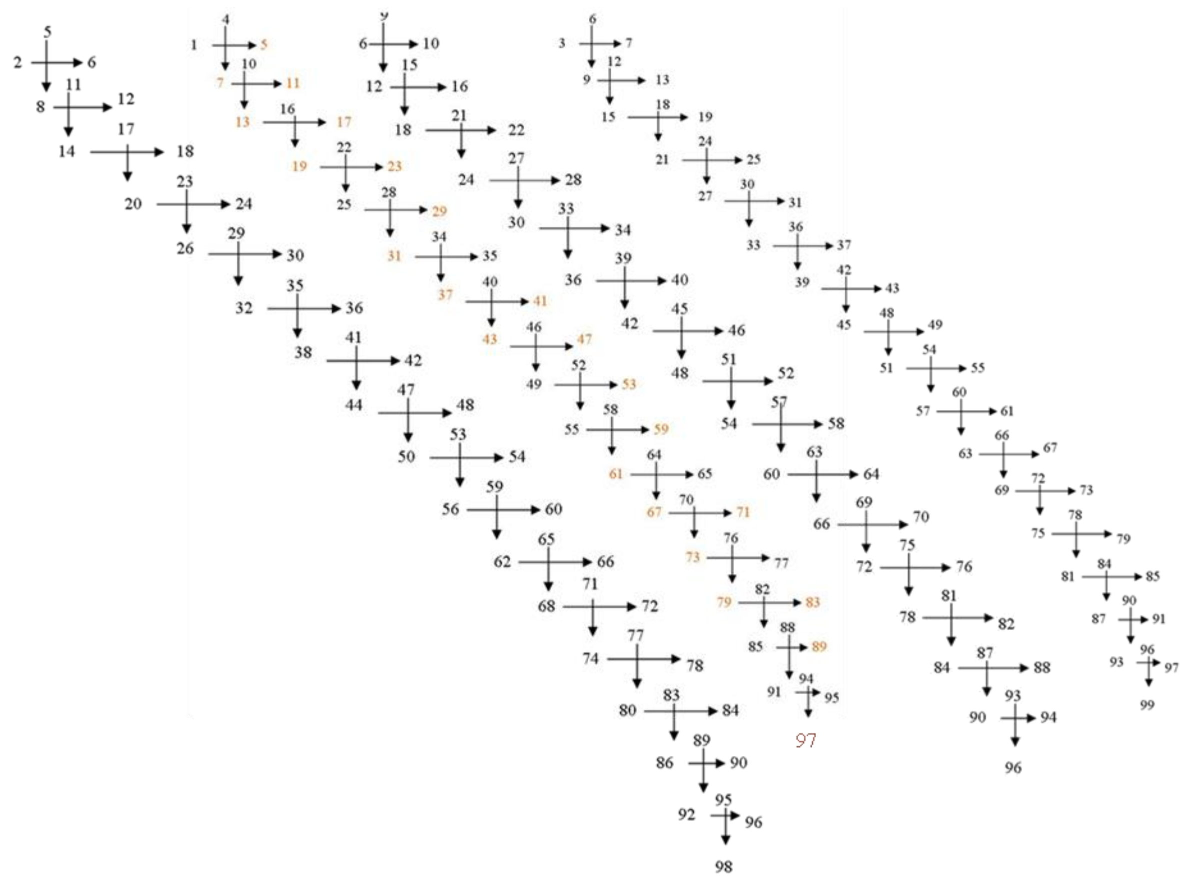
5+6k reconnect with 2+6k

Or A_i = i+6k for $1 \le i \le 6$ represent the vertices of an hexagram, with period equals to 3



(Fig.27)

Since: in base modulo 9 we have $i + 6k = \{i,\ i+6,\ i+3\ or\ \ i+9\}\ for\ k = 0,1,2,3$



(Fig.28)

Fabric of The Space / Time: Space/Time has an atomic structure that can be viewed as an extremely fine fabric or network woven of finite strings or loops, called spin networks with a shape of a Twisted Hexagram Torus.

Groups:

The (Fig.29) shows the orbital of the primes, composites and the axis Δ_{ii} $with\ respect\ to\ the\ three\ groups$ $\delta_1 = \{1,4,7\}$ $\delta_2 = \{2,5,8\}$ and $\delta_3 = \{3,6,9\}$ ($Consider\ base\ modulo$ 9).

The first column for example modulo 9 is: (2,8,14,20,26,32,38……98)=(2,8,5,2,8,5……,2,8,5) is related to the class of $\delta_2 = \{2,5,8\}$.

If you analyze the Fig.29 you will realize that is the same lattice 10x10 from the set $M_{99} = \{1,2,3, \ldots \ldots 99\}$ twisted and folded into 6x16 lattice "modulo 6", with $99 \equiv 3[6]$

(2,8,5)	(1,7,4)	(6,3,9)	(5,2,8)	(4,1,7)	(3,9,6)
2+6k	1+6k	6k	5+6k	4+6k	3+6k
Even	Odd	Even	Odd	Even	Odd
					3
				4	9
			5	10	15
	1	6	11	16	21
2	7	12	17	22	27
8	13	18	23	28	33
14	19	24	29	34	39
20	25	30	35	40	45
26	31	36	41	46	51
32	37	42	47	52	57
38	43	48	53	58	63
44	49	54	59	64	69
50	55	60	65	70	75
56	61	66	71	76	81
62	67	72	77	82	87
68	73	78	83	88	93
74	79	84	89	94	99
80	85	90	95	1	6
86	91	96	2	7	12
92	97	3	8	13	
98	4	9	14		
5	10	15			
11					

(Fig.29)

Fabric of The Space / Time: Space/Time has an atomic structure that can be viewed as an extremely fine fabric or network woven of finite strings or loops, called spin networks with a shape of a Twisted Hexagram Torus.

Groups:

The (Fig.29) shows the orbital of the primes, composites and the axis Δ_{ii} *with respect to the three groups* $\delta_1 = \{1,4,7\}$ $\delta_2 = \{2,5,8\}$ and $\delta_3 = \{3,6,9\}$ (*Consider base modulo* 9).

The first column for example modulo 9 is: (2,8,14,20,26,32,38……98)=(2,8,5,2,8,5……,2,8,5) is related to the class of $\delta_2 = \{2,5,8\}$.

If you analyze the Fig.29 you will realize that is the same lattice 10x10 from the set $M_{99} = \{1,2,3, \dots \dots 99\}$ twisted and folded into 6x16 lattice "modulo 6", with $99 \equiv 3[6]$

Period of *the System*:

Graph Representative of Time: 2664 (Number of Primes per Group 2-6-6-4) indicates the direction of the torus inside the sphere 666:

The system is connected to the Pascal's Triangle. We know the period of the sequences E_n, T_n, F_n equals to $\mathrm{P} = \mathrm{LCM}(6,9,24) = 72$

Therefore **P=72**

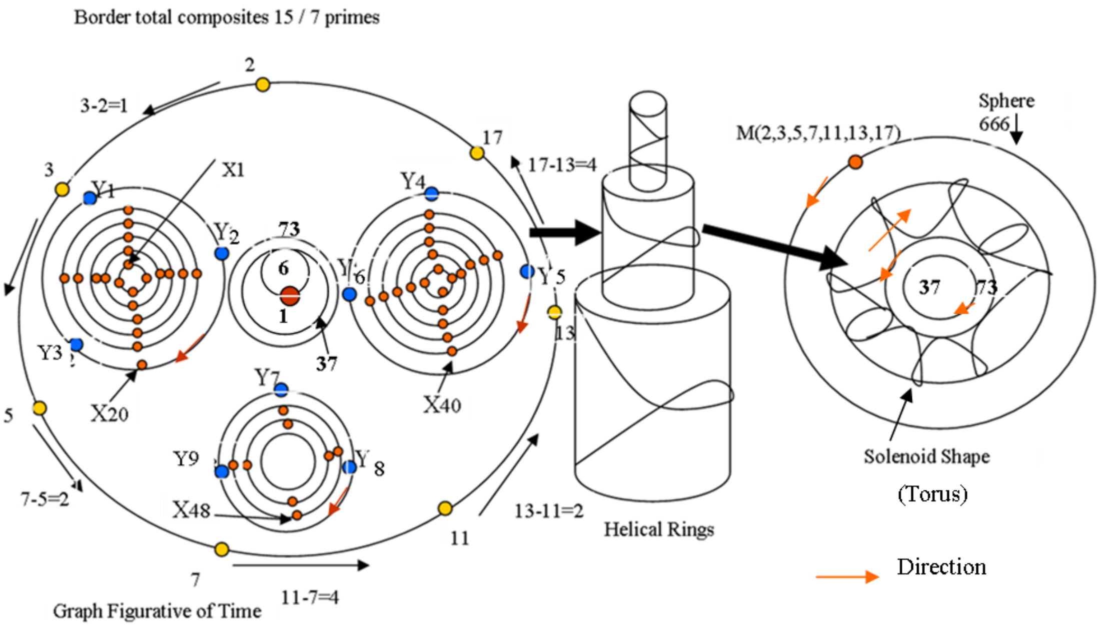
Verification: $\boldsymbol{\zeta}$ ***is represented by 2664 and we know***:

$$2664 = 4 \times 666 = \sum_{i=0}^{73} i - 37 = 72 \times 37 \equiv 0[37]$$

We should prove that the circle 37 noted C_{37} with radius $r^2 = 37$ rotates 72 times.

Since 37 and 73 are two transpalindrome numbers, with opposite direction, and $37 \leq 73$

If we decompose 73 into 73 points equidistant to each other , when you turn from a point to the next it represent 1 period of the circle C_{37} .



(Fig.30)

Conclusion: C_{37} represents the contour or the timer, each time the circleC_{37} turns for a period of $2\pi = 360^0$, the circle C_{73} turns $^1/_{72}$ time.

Or: C_{37} corresponds to the oscillation of (1, 6) / $1^2 + 6^2 = 37$. To understand the Primes and Composites behavior, we should proceed by a method of distributions with respect to the code .

Composites Configuration: Shell / Electrons →(Prime / Composites)

The Set $M_n = \{1,2,3, \ldots \ldots ,99\}$ corresponds to 25 primes, 73 composites and number 1.
7 consecutive primes$\{2,3,5,7,11,13,17\} \in S_{666}$, then the 18 remaining primes left are orbiting inside S_{666}.
By decomposing the remaining number of the primes into three: 18 = 6+6+6
The 73 composites = 72 composites + Number 6
= 24x3 composites + Number 6
Now each group of 6 primes corresponds to 24 composites, and the remaining number 6 which it will combine with the number 1, therefore the pair (1, 6) oscillates to form the circle C_{37}.
If you draw a **Tetrahedral** and place in its base for each of its three vertices the correspondent pair of 6/24 which correspond to the number of primes respectively number of composites, then place in the middle of the tetrahedral the **number 6,** and connect it to the upper vertex (number1). Number1 and number 6 are connected.

Simplification, see (Fig.31):

Since in the middle we have operated through a circle with radius r with r^2 =37 including inside its super-partner the circle with radius R, with $R^2 = 73$ (2 primes in the middle), see (Fig.8).
Then one of the vertices of the previous triangle must have only 4 primes in stay of 6 primes.
So now our **prime distributions are: 2 - 6 - 6 - 4** see (Fig.31)
From the equation: $2^2 + 3^2 + 5^2 + 7^2 + 11^2 + 13^2 + 17^2 = 666$
We have: $\sum_{i=1}^{7} \rho_i = 58$ and $\sum_{i=0}^{7} \rho_{i+1} - \rho_i = 15$
With total: $\sum_{i=1}^{7} \rho_i + \sum_{i=0}^{7} \rho_{i+1} - \rho_i = 15 + 58 = 73$
As a result the points 2,3,5,7,11,13,17 are on the circle c_{73} with the direction opposite to the circle c_{37}. the point M (2,3,5,7,11,13,17) of the sphere S_{666} rotates with the same direction of

the sphere S_{666} .
And by using the notion of packing spheres, those 7 primes related to the point M are connected to 15 composites, while the rest of 58 composites are connected to the 18 primes.

Interpretation:

From those equations we deduct that the number of composite numbers at the bounded area of c_{73} are 15 composites and the number of composite numbers along the torus and the circle c_{37} are 58 composites, which means 15 composite numbers orbiting around 7 prime numbers: 7/15 and 58 composites orbiting around the 18 remaining primes inside the torus 18/58.

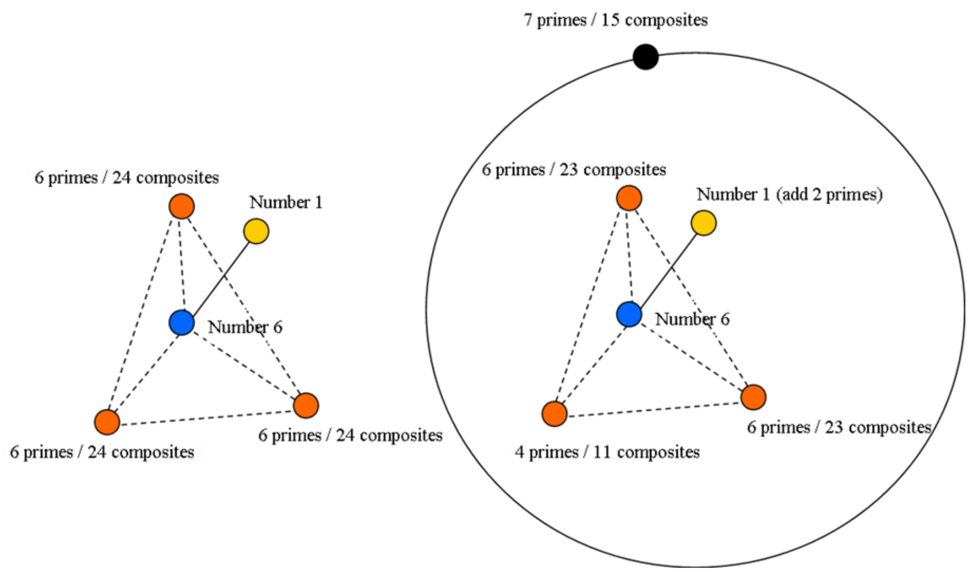
Distribution of the 58 composite numbers in the torus inside the sphere S_{666}:

Let's denote by (primes= shells) and (composites=electrons) orbiting around shells.

From the property 4 : Each element a_{ij} of δ_i for $1 \leq i \leq 3$ is connected to δ_{i+1} per **spin+1**, **Spin+4**. And each element a_{ij} of δ_i is connected to the other element a_{i+1j} of δ_i per **spin+3**: in the order (1, 4, and 3) → (1 composite, 4 composites, 3 composites).

- The two Shells 37 and 73 correspond to the pair (1, 6)
- The first 6 primes/shells, each shell corresponds to **4 composites,** while the last shell corresponds to **3 composites**. With total composites $[5 \times 4 + 3 = 23\ composites]$
- The second 6 primes with similar distribution, for a total also of 23 composites.
- The last 4 primes remaining will correspond to$[58 - 23 - 23 - 1 = 11\ ]$.

Shell1 corresponds to 4 composites, 2nd Shell corresponds to 4 composites and 3rd shell corresponds to 0 composites, while the 4th Shell corresponds to 3 composites.



(Fig.31)

Conclusion: Composites Configuration is then**:**
(Primes / Composite) : (7, 15) , (2 , 1) , (6 , 23) , (6 , 23) , (4 , 11)
$\rightarrow Total\ (7 + 2 + 6, +6 + 4\ ,\ 15 + 1 + 23 + 23 + 11) = (\mathbf{25}\ ,\ \mathbf{73})$

Dynamical System of Time:

Let's introduce the operator S for the discrete system:

$$\xi \times \boldsymbol{\zeta} \rightarrow \boldsymbol{\xi}$$
$$(x, t) \rightarrow S_t x = \boldsymbol{T}^{\boldsymbol{n}}\mathbf{x}$$

$$n, x \ \ elements\ of\ \{1,2, \dots \dots \dots, 99\}$$

With parameters $(Primes, Composites, Palindromes\ ) = \ (P, C, \Delta_{ii})$
$\Delta_{ii}\ is\ the\ set\ of\ the\ palindromic\ numbers\ corresponds\ to\ the\ axis\ OZ$
$\Delta_{ii} = \{11, 22, 33, 44 \dots \dots, 99\}$. The system is homogeneous.
Card $\Delta_{ii} = 3^2$, $Card\ P = 5^2\ and\ Card\ C = 8^2$ (excluding number 6 and (22, ….99) $of\ \Delta_{ii}$))

$$\text{card } \Delta_{ii} < \ card\ P < card\ C$$

From the representation of (P/P), (C/C) and (P/C):
- P/P={(13,31), (17,71), (37,73), (79,97)} with 4/4 elements of M_{99}, prime and its super-partner prime have opposite direction, the numbers 13 and 17 have the same direction as sphere S_{666}.
- Primes with their Super-partner Composites P/C =16/16 elements
- Composites with their Super-partner Composites C/C = 24/24 elements.

Introducing $G = 37 = \ 1^2 + 6^2$ equation of a circle that corresponds to the oscillation of the pair (1, 6), G defined as gravity center, or circle of convergence with its super-partner C_{73}.
Let's denote by $x_i\ and\ x_{i+1}\ consecutif\ elements\ of\ M_{99} = \{1,2,3, \dots \dots 99\}$
We have $x_{i+1}x_i - x_i x_{i+1} = 9(x_{i+1} - x_i)$ in the form of $x = \omega t$ equation that represents respectively: Distance, Speed and Time.
Let' define $x_i(t_i) = t_i = i$ so $x_{i+1} - x_i = i + 1 - i = 1$
When the pair (1, 6) oscillates 72 times, which corresponds to 72 composites that orbit around the primes, we have then:

$$\sum_{i=1}^{72}(x_{i+1}x_i - x_i x_{i+1}) = 9\sum_{1}^{72}(x_{i+1} - x_i) = 9 \times 72 = 666 - 18 = 666 - (6 + 6 + 6) = S_{666} - S_{18}$$

$\rightarrow Equation\ of\ a\ Torus$, the two spheres have the same angular momentum, since 666=18x37

Distribution of the **prime ≡ shell** and **composite ≡ electron**:

-2 shells in the middle represented by numbers: 37 and 73 with 1 composite number 6 and number 1 (the shell 37 represents the generator).
-2 groups of 6 primes ≡ 6 shells each (see Fig .31). The first 5 shells of each group correspond to 4 composites per shell which is equivalent to electrons / shell. And the last shell of each of those 2 groups corresponds to 3 composites.
Each Group of 6 primes corresponds then to $4 \times 5\ +\ 3 = 23\ composites$
- The third group with a total of 4 shells: the first and second shell with 4 composites, the third has 0 shells and the last one has 3 composites.
This group then with 4 primes and corresponds to $4 \times 2 + 3 = 11\ composites$

Notice : the case of P/P: when a prime contains composites then its super-partner contains 0 composites.
the last shell of each group orbits in the opposite direction to the other shells.

Arithmetic Progression / Triangular numbers:
Then:

- For the first group :

Let's denote by x_i the composites $for\ the\ first\ 5\ shells\ with\ 1 \le i \le 20$

$$and\ \ y_i\ Palindromes\ with\ 1 \le i \le 3$$

$y_i\ located\ on\ the\ 6^{th}\ shell\ \ has\ opposite\ direction\ to\ the\ 5\ shells\ then$: When the counter 37 maps one tour, the first element $x_1\ moves\ toward\ x_2$ and again with another $tour\ of\ the\ shell\ 37,\ x_2$ moves to x_3, this operation continue till x_{20} .

$Each\ time\ y_1\ moves\ to\ y_3$ the composite $x_1\ moves\ to\ x_{20}\ three\ times$ **See (Fig.30)**

We have then the arithmetic progression: with the condition $x_0 = 0\ and\ y_0 = 0$

$$\boxed{\sum_1^3 (y_i - y_{i-1}) = 3\sum_1^{20} (x_i - x_{i-1}) = 3 \times 20 = 60\ seconds = 4(1+2+3+4+5)}$$

- Apply the same method for the second group of 6 shells:

$$\boxed{\sum_4^6 (y_i - y_{i-1}) = 3\sum_{21}^{40} (x_i - x_{i-1}) = 3 \times 20 = 60\ minutes = 4(1+2+3+4+5)}$$

- Let's apply the same method also for the third Group of 4 shells:

$$\boxed{\sum_7^9 (y_i - y_{i-1}) = 3\sum_{41}^{48} (x_i - x_{i-1}) = 3 \times 8 = 24\ hours = 4(1+2+3)}$$

Time:

Group1 with 6 Shells: $4\sum_{i=1}^{5} i = 4(1+2+3+4+5) = 60$ sec

corresponds also to $(4 \times 5) \times 3 = 60sec$

Group 2 with 6 Shells: $4\sum_{i=1}^{5} i = 4(1+2+3+4+5) = 60$ mn

corresponds also to $(4 \times 5) \times 3 = 60mn$

Group 3 with 4 Shells: $4\sum_{i=1}^{3} i = 4(1+2+3) = 24hr$

corresponds also to $(4 \times 2) \times 3 = 24hr$

With the same method for month and year using the 7 primes coordinates of the point M that maps the sphere S_{666} with the correspondents 15 composites.

Period equals 72:

If we consider the 73 composite numbers as vertices then the number of the edges which connect those vertices is equal to 72. The circle 37 turns 72 times, each turn corresponds to a move of a composite to the successor to form an edge.

$37 \times \mathbf{72} = 2664 = 4 \times 666 = 4 \times (666 - 18) + 72 \equiv \mathbf{0}[\mathbf{72}]$

also if we consider the angular momentum 9 between two vertices then:

$9\times 72 = 666 - 18 = S_{666} - S_{18} \rightarrow Equation\ of\ a\ Torus$

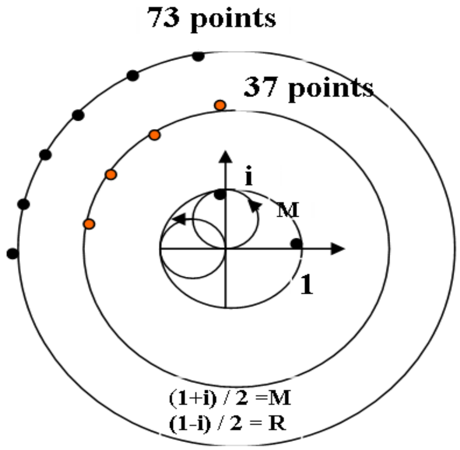
Origin of Time:

The generator of Time which is the circle C_{37} corresponds for each tour to a move of a composite number, which maps a unity of time. C_{37} corresponds to the oscillation of (1, 6) / $1^2 + 6^2 = 37 \rightarrow$ (1,6,37) are component of G (Gravity), Time is connected to Gravity.

Time depends on the Gravity and Gravity governs the Time. While the circle unity spins $4 \times 1/2\ \times 36 = 72$ (that when the circle 37 maps the 37 points, with 36 equidistant paths).

Since 72 represents the number of composites in the set, which is equals to the period orbital.

The graviton is the counter of Time, thus Time is generated by the Gravity.

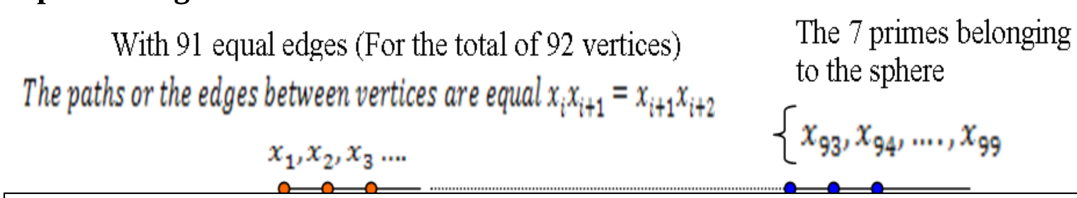


(Fig.32)

Chemical Interpretation: (1, 6) corresponds to (Hydrogen, Carbone) that generates Time.

Conclusion:
Time Machine is generated from the hydrocarbon.

Speed of Light:



Corollary: Giving a set $M_{99} = \{1, 2, 3 \ldots, 99\}$ *bounded by an hyperSphere* S_{r^2} and a set of points $(\rho_1, \rho_2, \rho_3, \rho_4, \rho_5, \rho_6, \rho_7)$ in $\mathbb{R}^7$ satisfying:

$$\sum_{i=1}^{7} \rho_i^2 = r^2$$

Where r is the Salahdin Daouairi 's radius of the hyper-sphere S_{r^2} , with $r^2 = 666$
Such that: $2 \leq \rho_i < [r] - 6$ And ρ_i *consecutive primes*
Then the maximum speed for the first element of M_{99} to reach the last element of M_{99} defines the Speed of light.

Let's denote by $M_{99} = \{1, 2, 3 \ldots, 99\}$ the string of x_i elements of M_n, where $i \leq 99$.
We already know the elements 2,3,5,7,11,13,17, coordinates of the point M of the sphere S_{666} orbit in the opposite direction of the remaining numbers of M_{99} (with total 92 numbers).
The maximum speed for the first element of M_{99} to reach the last element of M_{99} is then determined by the maximum distance traveled from $x_1 \to x_{92}$ with a minimum length of time which corresponds to: $t = 5 \times 1\ sec$ (Consider 1second for each of the 5 groups represented in the figure.30)
The maximum distance traveled is reached when all the 18 circles are equals with the highest radius! Or the radius of each of the circles is less than to the one of the Sphere by $r_i \leq \frac{R}{2}$, where R is the radius of the Sphere S_{666}. Then the perimeter maximum of each circle equals $2\pi \frac{R}{2}$.

There are 92 vertices inside the sphere (with 91 edges or paths) and 7 vertices are coordinates of the point M of the sphere with 7 paths, each path corresponds to 18 circles turns. While the 7 vertices (primes) orbit with the sphere, the 18 circles will describe 18x 7 turns. See (Fig.33)

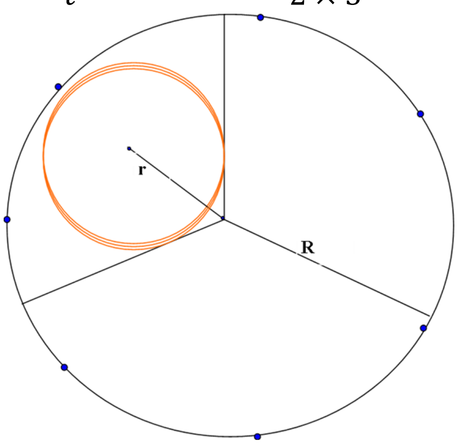
Conclusion:

The distance maximum equals to: $x = 7 \times 18 \times 2\pi \frac{R}{2} \times 91$ with $\pi \approx \frac{22}{7}$

The time minimum corresponds to : $t = 5 \times 1\ second$ (5 groups: sec, mn, hr, day, and week)

Then the speed maximum corresponds to that of an electron :

$$c = \frac{x}{t} = \frac{7 \times 18 \times 2 \times \frac{22}{7} \times \sqrt{666} \times 91}{2 \times 5} = 185996 \approx speed\ of\ light\ 186000\ miles/second$$



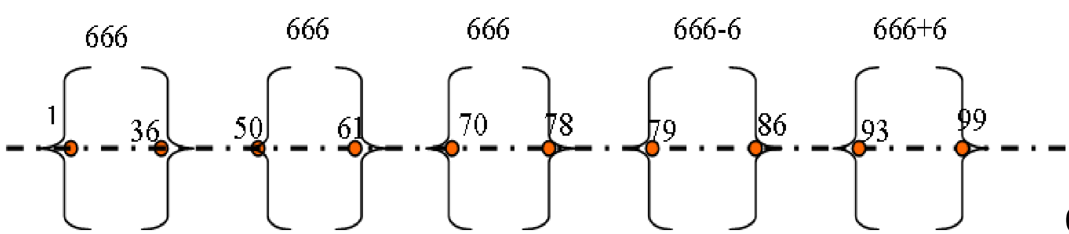
(Fig.33)

Dark Matter / Multi-verse:

From the following sequences:

$\sum_{i=1}^{36} i = 666$ $\sum_{i=50}^{61} i = 666$ $\sum_{i=70}^{78} i = 666$ $\sum_{79}^{86} i = 666 - 6$ $\sum_{93}^{99} i = 666 + 6$

$$or \sum_{i=1}^{36} i = 666 = (1 + 2 + 3) + \sum_{i=4}^{36} i = 6 + (666 - 6) \text{ which is} \rightarrow [1,3] \cup [4,36]$$



(Fig.34)

Then $(3 - 1) + (36 - 4) + (61 - 50) + (78 - 70) + (86 - 79) + (99 - 93) = 66 \rightarrow 66\%$

And $(1 - 0) + (4 - 3) + (50 - 36) + (70 - 61) + (79 - 78) + (93 - 86) = 33 \rightarrow 33\%$

Or from the following sum: $\sum_{i=1}^{99} i = 7 \times 666 + 288$

we have the difference:

$\sum_{i=1}^{99} i - \left(\boldsymbol{\sum_{i=1}^{36} i + \sum_{i=50}^{61} i + \sum_{i=70}^{78} i + \sum_{79}^{86} i + \sum_{93}^{99} i}\right) = \mathbf{2 \times 666 + 288}$

Let's denote by: 666, 666-6 and 666+6 the three type of universes. Then the equation shows that 5 universes already formed, and a pair of paralleled universe is under construction (inflation), among the pair is our universe which is under expansion. The total of universes then is 7.

If we denote $S = 666 \pm x\ where\ x \in f = \{0, \pm 6\}$, it shows the universes are charged +/- , which introduces the phenomena of electromagnetic between universes. The element 6 is the only composite number that reacts with the graviton related to the circle unity, then the element 6 could be the neutrino, the weakly interacting massive particle (WIMP) related to the weak force. (1,10) are transpalindromes with different parity relative to fermionic field and (6,60) are transpalindromes with same parity relative to the bosonic field.

$(1,6) \rightarrow$ *is the superpartner image of* $(10,60)$, *or we know*: $1^2 + 6^2 = 37 = G$

While 37 and 73 represent the event horizon relatively to the singularity 55, and 74 the wormhole.

We have : $10^2 + 60^2 = 100 \times 37$ *and* $2664 + 4662 + 74 = 2 \times 100 \times 37$

Space + Time + wormhole= twice ($10^2 + 60^2$) (*double flux cone*))

Conclusion: Image of a black hole is the wormhole.

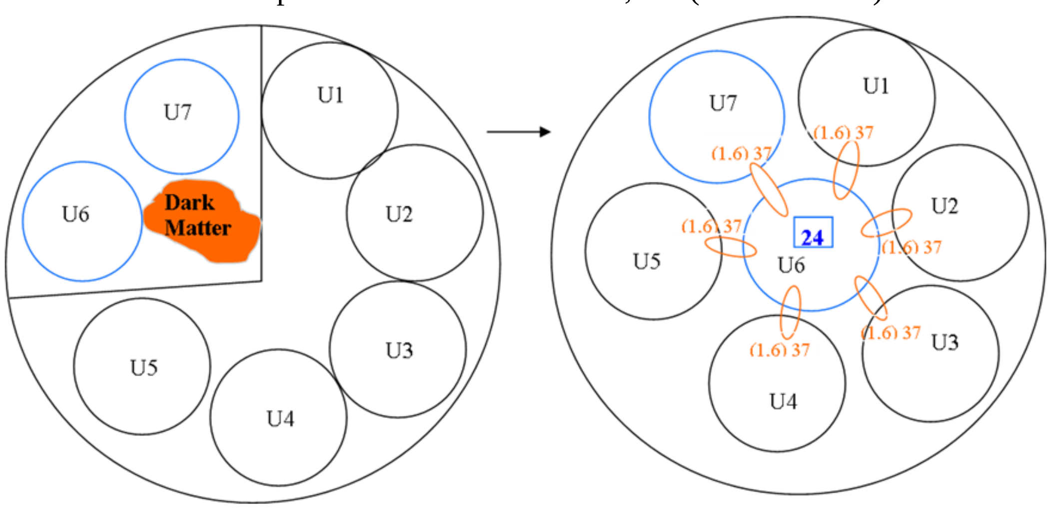
Or from the 2 following equations:

$\boldsymbol{Q = 288 = ((1+6)+37)6+24}$ And $\boldsymbol{T_{25} = \sum_{i=0}^{25} i = 288 + 37 \rightarrow 288}$

The number 288 represents Dark Matter Q , and (1, 6) are the components of the Gravity G=37, The equation shows that dark matter provides the elements 1 and 6 to hold the gravity, without dark matter, gravity will collapse, although universes are connected through the gravity. The dark matter generates matter through the axis which is the backbone of the multi-verse that controls the space/time and provides also the first elements to create our universe.

As a result, those equations describe a deep relation and show the connection between “Time & Gravity”, “Dark Matter & Space” and “Dark Matter & Gravity”.

Note the number **24** represents the **First Element**, see (First Element).



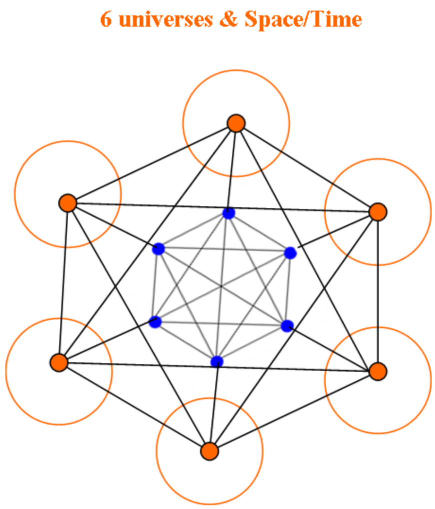
(Fig.35)

Dimension: 6 Universes and Space/Time

Corollary: Giving a set $\boldsymbol{M_{99}}$ $\boldsymbol{=\{1,2,3 \ldots, 99\}}$ *bounded by an hyperSphere* $\boldsymbol{S_{r^2}}$ and a set of points $\boldsymbol{(\rho_1, \rho_2, \rho_3, \rho_4, \rho_5, \rho_6, \rho_7)}$ in $\mathbb{R}^7$satisfying:

$$\boldsymbol{\sum_{i=1}^{7} \rho_i^2 = r^2}$$

Where r is the Salahdin Daouairi ’s Radius of the hyper-sphere $\boldsymbol{S_{r^2}}$, with $\boldsymbol{r^2 = 666}$, Such that: $\boldsymbol{2 \le \rho_i < [r] - 6}$ And $\boldsymbol{\rho_i}$ *consecutive primes*. Then the dynamical of the system $\boldsymbol{M_{99}}$ and $\boldsymbol{S_{r^2}}$ defines the Dim of the Multi-verse which is 11, dim U = 11.



(Fig.36)

It shows that the dimension of the hyper-Sphere 666 equals to: Dim$S_{r^2} = 6$, or the orbital of the elements of M_{99} bounded by the hyper-Sphere S_{r^2} define an extra of dimensions which is our curved Space / Time. Our Space/Time corresponds to a 5-Simplex polytope, then:

$Dim\ Space/Time\ = 5$

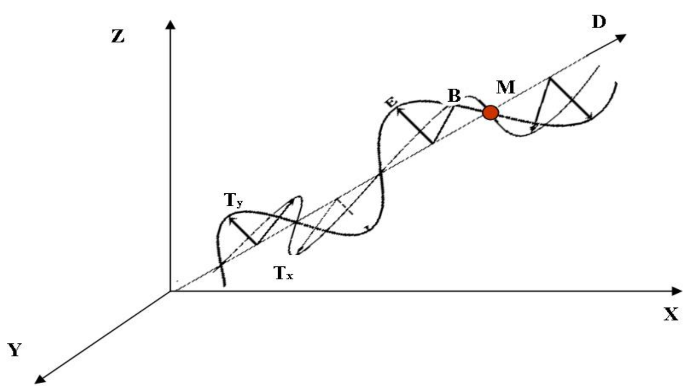
→ The total dimension of the Multi-verse is equal to: Dim U=5+6=11.

This proves the extra 6 dimensions in the string theory, which add up from the extra universes that govern the **Dark Energy**. (See Dark Energy)

While dim of time $DimTime\ = 2$ (See Fig.19), Time with its screw dynamical, curls around the space, and travel sideways, that proves well the theory of relativity concerning time dilation.

For a point M travelling a long a line D, time defines a double helix spiral around D.

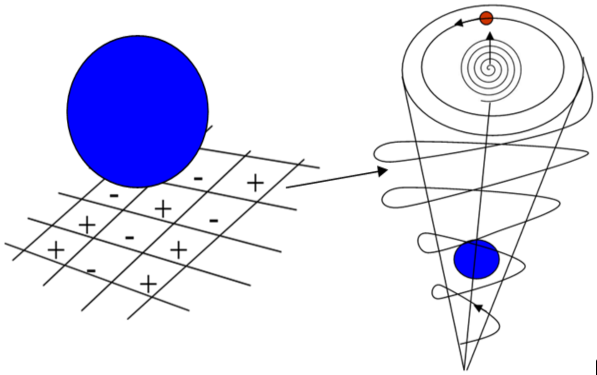
Since D is a curved line due to the rotation of the multi-verse, then space/time defines curvature, the helical curvature of the time is induced though electromagnetism and space curvature.



(Fig.37)

Fabric of The Space / Time: Space/Time has an atomic structure that can be viewed as an extremely fine fabric or network woven of finite strings or loops, called spin networks with a shape of a twisted hexagram torus. The fabric of space/ time is electromagnetized.

Now we see why the idea of big mass lies and deforms the fabric of the space is incorrect! There is no contact between the fabric and the big mass, but the mechanism yields to create an electromagnetic field between them. However the formulation still correct due to the curvature created by the electromagnetic / gravity fields that wrap the object. Gravity exists for big or small object; we cannot say a tiny object deforms the fabric of the space to attract another smaller object to it? Thus the fabric of the space encompasses and curls around any charged mass by creating a flux cone of electromagnetic field, while the phenomena of gravity results from the dynamical and the rotation of the flux cone (Fabric of the space).



(Fig.38)

Conclusion: The orbital of the planets result from the dynamical of space/time's fabric (fabric is electro-magnetized) that induces gravity.

First Elements:

I have to study the origin of the elements through the reaction:

$\sum_{i=37}^{49} \boldsymbol{i} + \sum_{i=62}^{69} \boldsymbol{i} + \quad \sum_{i=87}^{92} \boldsymbol{i} \ \rightarrow = 2 \times 666 + 288$

For each of this sequence the composite numbers are:

$\sum_{i=37}^{49} \boldsymbol{i} \rightarrow \mathbf{49, 48, 46, 45, 44, 42, 40, 39, 38}$

$49 = \mathbf{7^2}$, $\quad 48 = \mathbf{2^3} \times 6$, $\quad 46 = 23 \times 2$, $\quad 45 = 5 \times \mathbf{3^2}$ $\quad 44 = \mathbf{2^2} \times 11$

$42 = 7 \times 6$; $\quad 40 = \mathbf{2^3} \times 5$; $\quad 39 = 13 \times 3$; $\quad 38 = 19 \times 2$

$$\sum_{i=62}^{69} \boldsymbol{i} \rightarrow \mathbf{63, 64, 65, 66, 69}$$

$63 = 7 \times \mathbf{3^2}$ $\quad 64 = \mathbf{2^6}$ $\quad 65 = 13 \times 5$ $\quad 66 = 6 \times 11$ $\quad 69 = 3 \times 23$

$$\sum_{i=87}^{92} \boldsymbol{i} \rightarrow \mathbf{87, 88, 90, 91, 92}$$

$87 = 29 \times 3$ $\quad 88 = \mathbf{2^3} \times 11$ $\quad 90 = \mathbf{3} \times 6 \times 5$ $\quad 91 = 13 \times 7$ $\quad 92 = \mathbf{2^2} \times 23$

Since 1 and 6 are the predominant numbers and since 6= 2x3 we will be eliminating then 3^i.

The decomposition of the composites into power primes leads to classify the first primes:

The primes which are in powers are: $\quad 1,\ \mathbf{2^2}, 2^3, \mathbf{2^4}, \mathbf{2^6}, \mathbf{3^2}, \mathbf{7^2} \rightarrow \mathbf{1}, \mathbf{2}, \mathbf{6}, \mathbf{7}, 2^3$

Since the powers of 3 and 6 intercept at the point 9: $\quad 3^n \cap 6^n = 9^n \quad 3^n \cup 6^n = \{1,3,6,9\}$

$$6^n = \{1;\ 2 \times 3;\ 9\}$$

$1^n, 4^n, 5^n, 7^n, 8^n \subset 2^n$ with $4^n \neq 8^n$ and $8^n = \{1; 2 \times 4\}$

8=4x2 eliminate 4 and 6= 3x2 eliminate 3

Conclusion: the first elements are (1,2,6,7,and 8) which correspond respectively to the following particles of the periodic table: **Hydrogen**, **Helium**, **Carbone**, **Nitrogen**, and **Oxygen**.

Those 5 elements are connected from the formulas:

$\prod_{i=1}^{5} \boldsymbol{E_i} = \mathbf{1 \times 2 \times 6 \times 7 \times 8 = 666 + 6}$

$\sum_{i=1}^{5} \boldsymbol{E_i} = \mathbf{1 + 2 + 6 + 7 + 8 = 24 = 6 + 6 + 6 + 6}$

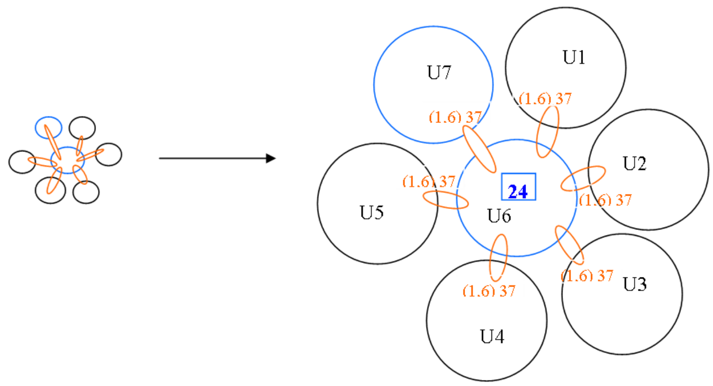
If we consider the reaction between the elements:

Initial State I⟶ Final State II $\{1,2,6,7,8\} \longrightarrow \prod_{i=1}^{5} \boldsymbol{E_i}$

Then the difference between the States is:

$\prod_{i=1}^{5} \boldsymbol{E_i} - \sum_{i=1}^{5} \boldsymbol{E_i} = \boldsymbol{\partial S = 666 - (6+6+6) = S_{666} - S_{18}}$ **Equation of Torus: (Space/ Time)** Space and Time are made from Matter (first elements).

Big Bang Before and After:



(Fig.39)

From the previous formulas of numerical equations, we can give detailed explanations on how the system or the Multi-verse was formed!

Well in the beginning it starts with dark matter, since it provides first elements, controls the gravity, which through it, generates time, connects the multi-universe, forms our universe through the first elements and generates matter through the axis which is the backbone of the multi-verse. Thus the singularity 55 of the black hole belongs to the axis Δ_{ii}.

From the equation: $Dark\ Matter = Q = 288 = (1 + 6 + 37) \times 6 + 24$

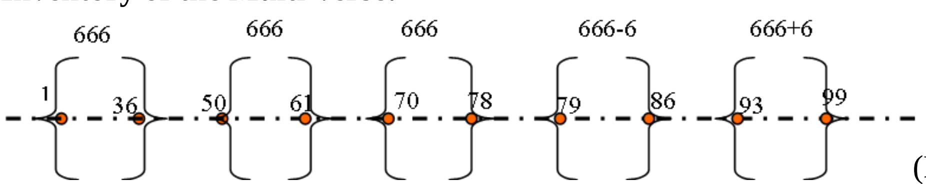
$$\boldsymbol{Dark\ Matter \longrightarrow First\ Elements + Gravity \longrightarrow Space/Time}$$

Time won't exist if there is no gravity, and gravity won't exist if there is no dark matter.

The first elements responsible for the Big Bang were continuously vibrating, with a harmonic oscillation, if they were stable, it won't be any reaction, means the time existed with the existence of the particles, among those particles the Graviton which is the counter.

Since $Dark\ Matter = Q = 288 = 1 \times 2^3 \times 6^2 \rightarrow$ Dark Matter originates from first elements 1, 2 and 6 (Hydrogen, Helium and Carbone).

Inventory of the Multi-verse:



(Fig.40)

From this string we can deduct that the Dark Energy represents the 5 universes surrounding a pair of paralleled universe which is under expansion (inflation), among this pair is our universe.

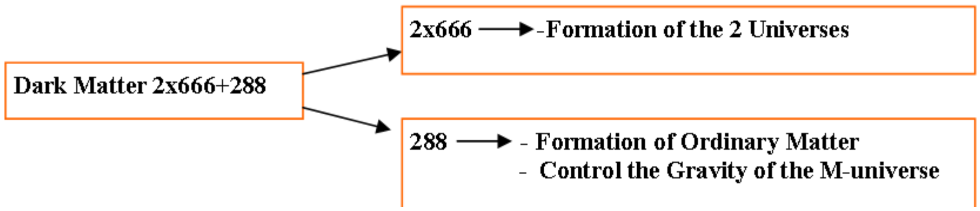
From this string we can view the inventory proportion of the total of the Multi-verse :

Our homogenous system is formed from a total of matter $\sum_{i=1}^{99} i = 4950$ which represents 99%.

The Dark Energy (See below dark energy property) is represented by the 5 universes with a total matter proportion: $666 \times 5 = 3330$

The percentage then is equal to: $\boldsymbol{\frac{666\times5}{\sum_{i=1}^{99} i} = 0.672 \rightarrow 67.2\%}$ **(Dark Energy).**

Dark Matter Distribution

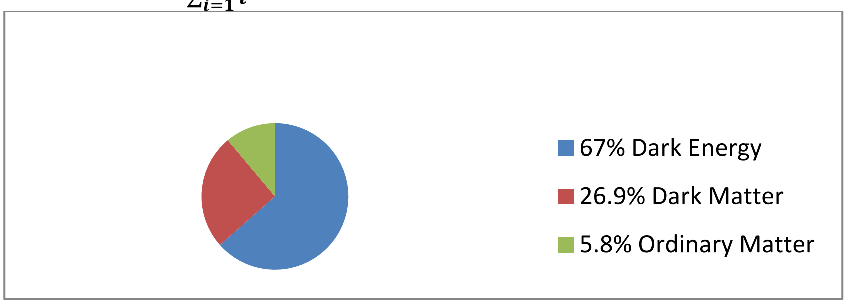


Dark matter exists everywhere in our universe, connects universes through gravity and provides ordinary matter to form our universe, with a total matter proportion: $666 \times 2 = 3330$

The percentage then equals to: $\frac{\mathbf{666\times2}}{\sum_{i=1}^{99} \boldsymbol{i}} = \mathbf{0.269} \rightarrow \mathbf{26.9\%}$ **(Dark Matter).**

Then the proportion of dark matter equals to 288, responsible for providing ordinary matter with a percentage equals to:

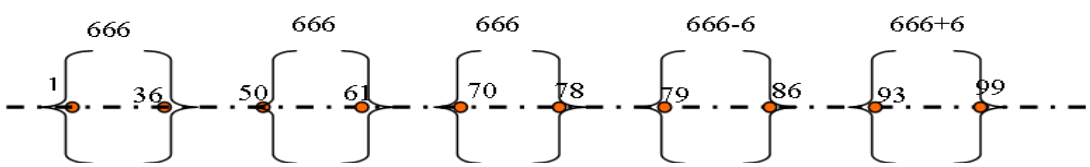
$$\frac{\mathbf{288}}{\sum_{i=1}^{99} \boldsymbol{i}} = \mathbf{0.058} \rightarrow \mathbf{5.8\%} \textbf{ (Ordinary Matter).}$$



(Fig.41)

Dynamical System of the Multi-verse:

$\sum_{i=1}^{36} \boldsymbol{i} = \mathbf{666}$ $\quad \sum_{i=50}^{61} \boldsymbol{i} = \mathbf{666}$ $\quad \sum_{i=70}^{78} \boldsymbol{i} = \mathbf{666}$ $\quad \sum_{79}^{86} \boldsymbol{i} = \mathbf{666-6}$ $\quad \sum_{93}^{99} \boldsymbol{i} = \mathbf{666+6}$



$$\sum_{i=1}^{99} i = \left(\sum_{i=1}^{36} \boldsymbol{i} + \sum_{i=50}^{61} \boldsymbol{i} + \sum_{i=70}^{78} \boldsymbol{i} + \sum_{79}^{86} \boldsymbol{i} + \sum_{93}^{99} \boldsymbol{i}\right) + \mathbf{2 \times 666 + 288}$$

$$\rightarrow \sum_{i=1}^{99} i = \left(6 + \sum_{i=4}^{36} \boldsymbol{i} + \sum_{i=50}^{61} \boldsymbol{i} + \sum_{i=70}^{78} \boldsymbol{i} + \sum_{79}^{86} \boldsymbol{i} + \sum_{93}^{99} \boldsymbol{i}\right) + \mathbf{2 \times 666 + 288}$$

$$\rightarrow \sum_{i=1}^{99} i = (6 + \mathbf{(666-6)} + \mathbf{(666)} + \mathbf{(666)} + \mathbf{(666-6)} + \mathbf{(666+6)} + \mathbf{2 \times 666 + 288}$$

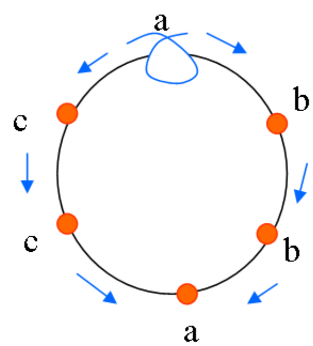
Or $\mathbf{2 \times 666 = (666+6) + (666-6)}$

Let's denote by: $\boldsymbol{a} = \mathbf{666-6}$, $\boldsymbol{b} = \mathbf{666}$, $\boldsymbol{c} = \mathbf{666+6}$

Then: $\sum_{i=1}^{99} i = 6 + a + b + b + a + c + c + a + 288$

If we denote by S the string of the 7 universes: $S = a + b + b + a + c + c + a$

We recognize this finite sequence as a string concatenation of alphabets a, b and c with length 7, for this regular language or expression lets define the product by composing letters of the string: Our string then has the form of: $abbacc$, which shows the alphabets orbit with an oscillation harmonic, (See chiral symmetry).



(Fig.42)

Following the regular language $E_1 \cup E_2$ which is a combination of the two disjoints regular expressions $E_1 and\ E_2$, with a monoid structure, where the union is represented by +, the concatenation by the product and by using the Kleene's Star closure operation for this algorithm of string, where z^*defined by $z^* = 1 + z + z^2 + z^3 \dots \dots . +z^n = \sum_0^\infty z^n = (1-z)^{-1}$ from the equation (I): $z^* = 1 + z.z^*$ then: $(X/YY)^*\ corresponds\ to\ (\mathrm{z/z^2})^*\ that\ yield\ to\ (z+z^2)^*$.
And by replacing z by $F = z + z^2\ in\ the\ equation\ (I),\ \ F^* = 1 + F.F^* = 1 + (z+z^2)F^*$
Yields to: $F^* = (1-(z+z^2))^{-1}\ or\ \frac{1}{1-(z+z^2)} = 1 + (z+z^2) + (z+z^2)^2\ \dots = \sum_0^\infty f_n\, z^n$
By the method of comparing the coefficients of z^n.
$\frac{1}{1-(z+z^2)} = \sum_{i=0}^\infty c_n\, z^n\ is\ also\ Maclaurin\ series\ with\ undetermined\ coefficients\ c_n.$ The generating function for f_n (Fibonacci sequence): $F^* = f(z) = \frac{1}{1-(z+z^2)} = \sum_0^\infty f_n\, z^n \to f_n = c_n$
The convergence radius of this series then is equal to:
$R = lim_{n\to\infty} \left|\frac{c_n}{c_{n+1}}\right| = \varphi = \frac{1+\sqrt{5}}{2}$ Golden Ratio
Let's denote: $by\ S = \{a,b,c\}\ \ and\ by\ F_1 = a,\ F_2 = b\ and\ F_3 = c\ with\ F_n = F_{n-1}F_{n-2}$
And by $f_1 = 1\ \ ,\ \ f_2 = 1\ and\ f_n = f_{n-1} + f_{n-2}\ the\ fibonacci\ sequence$
We have then:

		f_n
F_1	**a**	**1**
F_2	**b**	**1**
F_3	$F_2F_1 = c = ba$	**2**
F_4	$F_3F_2 = bab$	**3**
F_5	$F_4F_3 = babc = babba$	**5**
F_6	$F_5F_4 = babbabab$	**8**

Note: $F_6 = babbabab\ since\ c = ba\ then\ F_6 = cbccb \to z/z^2$
Equation of this dynamical system:
$f_1 = 1\ \ ,\qquad f_2 = 1\ and\ f_n = f_{n-1} + f_{n-2}\ the\ fibonacci\ sequence$
Let's denote $x_n = \begin{pmatrix} f_{n-1} \\ f_n \end{pmatrix}\ and\ J = \begin{pmatrix} 0 & 1 \\ 1 & 1 \end{pmatrix}\ then\ x_{n+1} = Jx_n(Operator\ J) \to x_n = J^n x_1$
The characteristic Equation: $det \begin{pmatrix} -\tau & 1 \\ 1 & 1-\tau \end{pmatrix} = 0\ \to \tau^2 - \tau - 1 = 0$
Eigen-value then are: $\tau_{1,2} = \frac{1}{2}(1 \pm \sqrt{5})$ and Eigenvectors $V_{1,2} = \begin{pmatrix} 1 \\ \tau_{1,2} \end{pmatrix}$
If $x_1 = \alpha V_1 + \beta V_2$ and with the initial data: $\alpha = -\beta = \frac{1}{\tau_1 - \tau_2} = \frac{1}{\sqrt{5}}$
then $\alpha {\tau_1}^n V_1 + \beta {\tau_2}^n V_2 = x_n$

$$\boxed{\rightarrow\ \boldsymbol{x_n} = \frac{\mathbf{1}}{\sqrt{\mathbf{5}}}(\boldsymbol{\tau_1}^{\boldsymbol{n}} - \boldsymbol{\tau_2}^{\boldsymbol{n}}) = \frac{\mathbf{1}}{\sqrt{\mathbf{5}}}\left(\left(\mathbf{1}+\sqrt{\mathbf{5}}\right)^{\boldsymbol{n}} + \left(\mathbf{1}-\sqrt{\mathbf{5}}\right)^{\boldsymbol{n}}\right) \textbf{ solution of } y'' - y' - 1 = 0}$$

Let's denote by $M = \frac{1+\sqrt{5}}{2}$ $and\ R = \frac{1-\sqrt{5}}{2}$ then $f_n = \frac{1}{M-R}((M)^n + (R)^n)$

We retrieve then again the Hadamard Transformation by:

$$\rightarrow \begin{pmatrix} M \\ R \end{pmatrix} = \frac{1}{2}\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{\sqrt{2}} H \begin{pmatrix} x \\ y \end{pmatrix} \qquad with(x, y) = \left(1, \sqrt{5}\right)$$

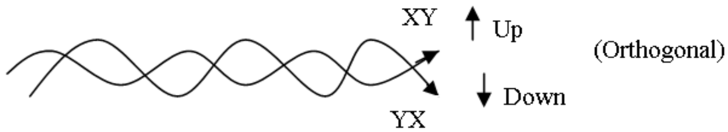
Or: $1 + \sqrt{5}^2 = \sqrt{6}^2$ *which imply the sum of the circles* $C_1 + C_5 = C_6$

That generates the Gravity 37 through the quadratic equation of (-1,6) → $37 = 6^2 + (-1)^2$ relatively to the flow 5, or congruence modulo 5.

Conclusion:

The Multi-verse orbits with an oscillation harmonic periodic in the form of the Spiral of Fibonacci that converges to $\varphi = \frac{1+\sqrt{5}}{2}$ the Golden Ratio.

Quantum Entanglement / DNA:



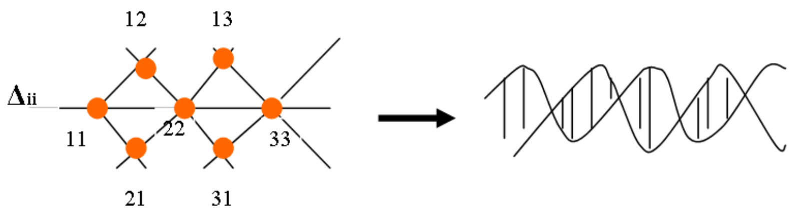
(Fig.43)

A priori the DNA is curled with space time and is wrapped with the electromagnetic waves. The concept of the entanglement shows that the DNA is communicating and teleporting information to other universe through Hadamard transform, with the same mechanism and same path as the quantum circuit.

We can represent the axis Δ_{ii} as the energy generated from the dark matter:

Through the relation: $a_{ij} + a_{nm} = a_{im} + a_{mi}$ with $i = j\ and\ m = n = i + 1$

(Property of a matrix used in signal processing)



(Fig.44)

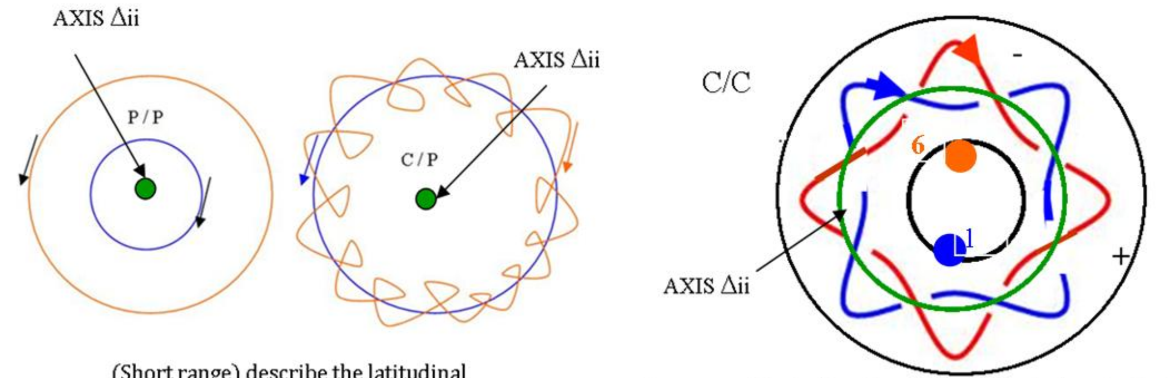
The **electromagnetic** field created between the charged universes of the string **generates** the **dynamical** of the multi-verse through the axis, while the dynamical of the multi-verse **generates** the **gravity**. Each particle in our space has a partner outside our universe " paralleled universe".

Electromagnetism, Gravity, weak and strong forces:

As a result, we deduct through our system that:

- the gravity is represented by a prime with its super-partner prime P/P (short range)
- The electromagnetic force by a composite with its super-partner prime C/P (with medium range).
- The strong force by a composite with its super-partner composite C/C (Long range)
- While weak force results from the interaction of the graviton 1 and neutrino 6

(Fig.45)



(Short range) describe the latitudinal orbital

P/P Gravity **C/P Electromagnetism**

(long range) including the axis describe the longitudinal orbital

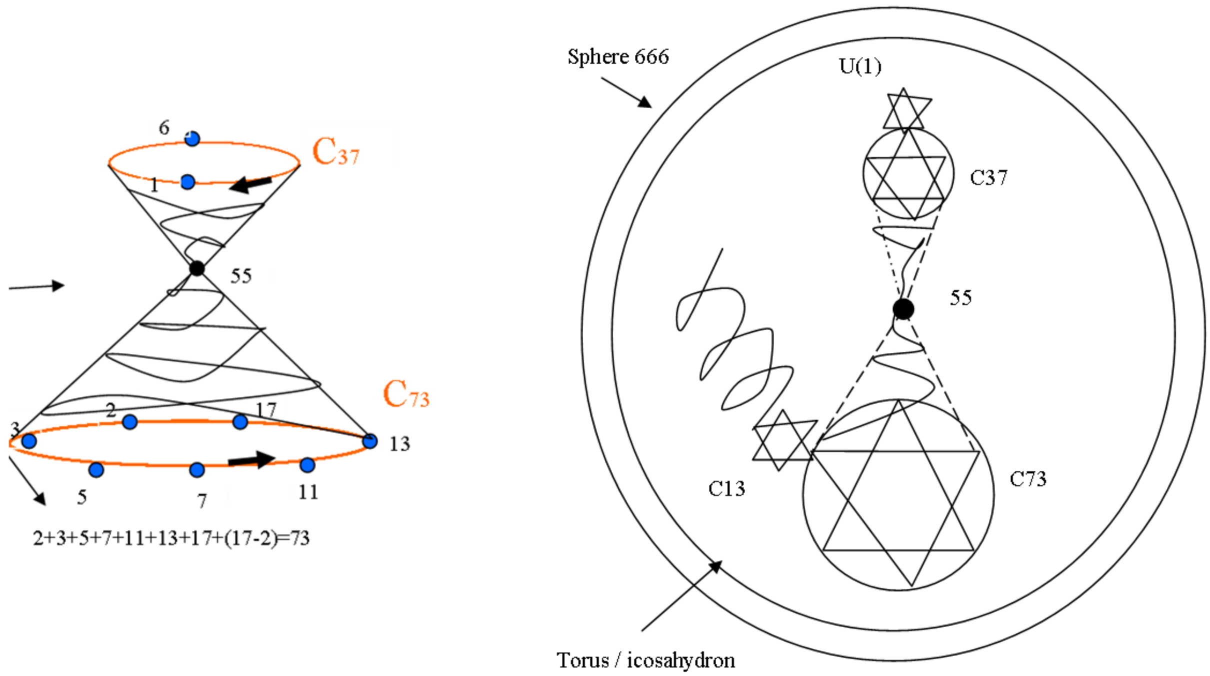
C/C Strong Force **(1,6) Weak Force**

System's Symmetry:

We notice our system's symmetry is determined by a combination of group's symmetry:
Denoted by: U(1), $Z_2 \times Z_3$ center of $SU(2) \times SU(3)$, Z_5 *is generated through* $A5$ alternating group of the Hemi-icosahydron determined by the double cover of the 5-simplex through the rotational triangle group (2,3,5) seen before (see generating function).
The center of SU(6) is isomorphs to the cyclic group $\mathbb{Z}/_{6\mathbb{Z}}$ which isomorphs *to* $\mathbb{Z}/_{2\mathbb{Z}} \times \mathbb{Z}/_{3\mathbb{Z}}$.
From those following important equations in our system:

- $(1, i) \rightarrow$ Correspond to the group unity U(1) that generates Time through electromagnetism.
- $1^2 + 6^2 \equiv 0[37]$.

Where (1,6) are components of gravity defined by flow $5 \approx \mathbb{Z}/_{5\mathbb{Z}}$, which is determined by the components $(1, \sqrt{5}) \rightarrow 1^2 + \sqrt{5}^2 = C_6 \equiv 0[6]$. Generate the dynamical system of the multi-verse. The string of superposed universes with the property of entanglement" describes a spiral of Fibonacci that induces the gravity through harmonic oscillations. The component of the gravity (1,6) describes then the space/time flow (curvature).
Note: $\mathbb{Z}\left[\frac{1+\sqrt{5}}{2}\right]$ is finitely generated Abelian group (a $\mathbb{Z}$-module), since $\varphi = \frac{1+\sqrt{5}}{2}$ is an algebraic integer of degree 2 over $\mathbb{Q}$ solution of the polynomial $x^2 - x - 1$
$\mathbb{Z}[\varphi]$ is a sub-ring of the quadratic field $\mathbb{Q}(\sqrt{5})$, the unique non trivial Galois automorphism of the real quadratic field $\mathbb{Q}(\varphi) = \mathbb{Q}(\sqrt{5}) + \mathbb{Q}_\varphi$
The extension $\mathbb{Q}(\varphi)$ is a quadratic field of rational numbers that corresponds to the cyclotomic field.
This ring defines also a 5 fold rotational symmetry group used in Penrose tiling relatively to the group cyclic Z_5 with angle 72°, of order 60 that corresponds to an icosahydron isomorphic to alternating group $\boldsymbol{A5}$.
Or we know: The only star numbers for the set $M_{99} = \{1,2,3, \dots ,99\}$ are: 1, 13, 37 and 73 with the form: $6n(n-1) + 1 \equiv 1[6]$
$2^2 + 3^2 = 13$ and $1^2 + 6^2 = 37$ we have also: $3^2 + (2^3)^2 = 73$ and $1^2 + \sqrt{5}^2 = 6$
Equation related to: U(1), Z_2, Z_3 *and* Z_5



(Fig.46)

Those four connected 5-simplex polytopes" Star numbers" or Hemi-icosahydron through a rotation (a double cover) generate the dynamical of Space/Time which map an icosahydron with order 60, determined by 5 groups of rotation: identity, $\frac{2\pi}{3}, \frac{2\pi}{5}, \frac{4\pi}{5}$ *and* π with 5 conjugacy classes.

Or the Galois group of the field extensions: $\mathbb{Q}\left(e^{\frac{2\pi i}{n}}\right)/_{\mathbb{Q}}$ for n=2 ,3 and 5 is isomorphic to the multiplicative group of units of the rings:$\mathbb{Z}_{/n\mathbb{Z}}$, with n=2, 3 and 5.

The icosahydron has vertices related to the golden ratio:

Let's denote by $(\pm a, \pm a, \pm a)$ the coordinate of the vertices of a cube circumscribed to an icosahydron, then the coordinates of the vertices of the inscribed isocahydron in a cartesian coordinate system are giving by:

$(\pm a, \pm b, 0), (0, \pm a, \pm b), (\pm b, 0, \pm a)$, with: $\frac{b}{a} = \varphi - 1$ (where φ *is the Golden Ratio*)

For $a = 1$ *and* $b = \varphi$ the coordinates are: $(\pm 1, \pm\varphi, 0), (0, \pm 1, \pm\varphi), (\pm\varphi, 0, \pm 1)$

By using the Welsh bound method for an optimal equiangular line packing based on 5-dimensional simplex, "in our case 6 lines" through the inner product, by a 6x6 square input symmetric matrix M called "conference matrix" with trace equals zero.

This matrix has an interesting form; all rows are orthogonal with norms equal$\sqrt{5}$, a combination of Pauli matrices σ_1 ,σ_2 and Hadamard matrix H.

Let's denote by + number +1 and by – number -1

$$M = \begin{pmatrix} 0 & + & + & + & + & + \\ + & 0 & + & - & - & + \\ + & + & 0 & + & - & - \\ + & - & + & 0 & + & - \\ + & - & - & + & 0 & + \\ + & + & - & - & + & 0 \end{pmatrix} = \begin{pmatrix} \sigma_1 & \sqrt{2}H & \sqrt{2}\sigma_2 H \\ \sqrt{2}H & \sigma_1 & -\sqrt{2}\sigma_2 H \\ \sqrt{2}\sigma_1 H & -\sqrt{2}\sigma_1 H & \sigma_1 \end{pmatrix}$$

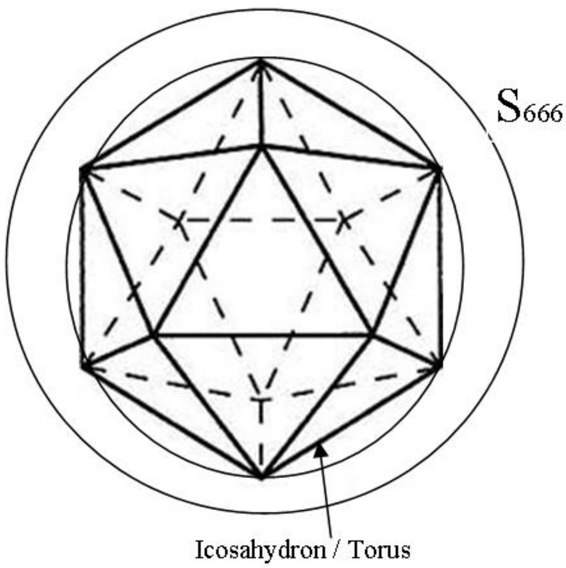
$$= \begin{pmatrix} \sigma_1 & \sqrt{2}(H)^T & \sqrt{2}(\sigma_1 H)^T \\ \sqrt{2}H & \sigma_1 & -\sqrt{2}(\sigma_1 H)^T \\ \sqrt{2}\sigma_1 H & -\sqrt{2}\sigma_1 H & \sigma_1 \end{pmatrix}$$

Since: $(\sigma_1 H)^T = \sigma_2 H$ and $(H)^T = H$

Where $M^2 = 5I \equiv 0[5]$ with Eigen-values equal $\sqrt{5}$ $and - \sqrt{5}$, and $\ker\left(M + \sqrt{5}I\right)$ $is\ of\ dim3$.

All lines intersecting pairwise at a common acute angle $arccos\frac{1}{\sqrt{5}}$, with the coordinates of its vertices related to the golden ratio.

Note: The volume of an icosahydron occupies less volume of a circumscribed sphere comparative to a dodecahydron. As a result! Less energy is used for an icosahydron shape than a dodecahydron.



(Fig.47)

Conclusion: we deduct then: the general group symmetric that keeps the system invariant is generated from a combination of the following group's symmetry:

- $U(1),\ SU(2),\ SU(3)$ and $A5$ the alternating group.

The standard model then is included!

Note the order of:

- $SU(2) \times A5 = 3 \times 60 = 180$
- $SU(3) \times A5 = 8 \times 60 = 480$
- $U(1) \times Z_2 \times Z_3 = 6$ (Z_2 and Z_3 are respectively centers of SU(2) and SU(3))

By adding those orders:

$180 + 480 + 6 = 666$

And the order of $A5 + SU(2) + SU(3) + U(1) = 60 + 3 + 8 + 1 = 72$

Biological Interpretation:

This dynamical and geometrical shape is seen also in the icosahydron geometrical shape of the viruses and dynamical of the DNA along the torus through the icosahydron.

Kissing Spheres:
This mathematical model intervene the notion of packing spheres inside a hyper-sphere of 6 dimensions, while packing is based on triangular sequences.
Using this method will lead us to the same distribution found for the primes and composites inside the sphere 666.
We can represent a number by a sphere or by a string. And as a mass it will be represented by the volume of the sphere or by the density from the mass distribution on the surface of the sphere.

Summary of the Equation

With simple tools of ingenuity, pencil and paper, we discovered the equation for The Theory of Everything, and through it we learned that the architecture of the universe is based on the structure of discrete numbers which reveal the perfection, elegance, and beauty of the universe. We disclosed the solid foundation of the universe's structure and design through its mathematical framework. With this original Theory of Everything, we have created a new paradigm which finally divulges the secret reality behind the physical properties of our universe.

We live in an 11-dimensional universe, inside a mathematical equation. This mathematical equation will guide us and will lead us in the exploration and discovery of wonders that have never before been imagined. The "Equation of Everything" showed us how the entire system: S= {*Space/Time/Matter/Energy/Gravity/Electromagnetism*} is homogeneous, unified and connected, explained the most important fundamental physical theories, and revealed the hidden connection between quantum theory and the macro-system which relies on space/time/gravity (where the theory of quantum gravity is finally reached).

We finally through this simple equation have at last disclosed the enshrouded secrets of Time! We revealed Time's origin and its properties, and we demonstrated how a time machine could be generated from gravity and electromagnetism. We also learned about "dark energy" and "dark matter" (neither of which could be described experimentally). While dark matter (as the backbone of the multi-verse) attracts, connects the multi-verse, and controls galaxies through gravity, dark energy acts as the opposite "repellant force" that results from the dynamics of the multi-verse…a new breed of dynamics that possess the power to induce inflation and the expansion of our universe.

We learned in the quantum field, about the spin of a particle and its electro-dynamic behavior which determines the path or the "quantum circuits" for the system through an "automata language" program that create woven networks which constitute the "fabric" of space. Signals of radiation and energy are sent through this fabric "lattice" along a cyclic transformation.

The Equation also gave us the means by which to perceive the geometrical shape of the multi-verse which will allow us to accurately determine the rate of universal entropy. We revealed the origin of the "Big- Bang" and how the universe crystallized and coalesced during those first few micro-seconds of existence. The Equation disclosed the enormity of the universe and allowed us to envision and contemplate the universe's colossal inventory of matter and energy.

The equation that represents The Theory of Everything is an application of quantum gravity and String Theory from the notion of super-symmetry with the representation of spinors through the theory of harmonic motion, which is based on parity or "chiral symmetry" that appears to be reflected and seen in nature.

The Equation will disclose in the field of biology, an important relationship among DNA, quantum entanglement and electromagnetism due to DNA teleportation, structure and shape. A mathematical model based on electromagnetism embedded with the properties of quantum entanglement will provide the cure for many illnesses and will map out the shortest route for the discovery of new methods and techniques with which to finally defeat and eradicate the viruses that have been plaguing humankind for millennia.

By Salahdin Daouairi

References

[1] Wikipedia