

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/374977719>

# Mathematical modeling and simulation of 'Life Particle'

Article · October 2023

---

CITATIONS  
3

READS  
69

3 authors, including:



[Hiran Das Mahar](#)

RG Govt PG Autonomous College Ambikapur

32 PUBLICATIONS 27 CITATIONS

SEE PROFILE

# Mathematical modeling and simulation of 'Life Particle'

H. D. Mahar, Lab. N<sup>0</sup>18, Science Faculty, R G P G College Ambikapur, C G, 497001, India.  
 Durgesh Mahar, School of Life Sc. Devi Ahilya Vishwavidyalaya, Indore, M P, 452010 India.  
 Divya Mahar, Dept. of Microbiology, Philosophical Society, Ledri, Manendragarh, C G. 497448

## Abstract:

Mathematics of life particle (LP) i.e. set theory, the axiom of union, and the law of lifetime was studied. The triangle and pentagon bi-model was proposed in the modeling and simulation of LP. The spontaneous origin and structure of LP were explained under set theory and mathematical axiom. Matrix theory was studied along with the calculation of cofactor and matrix determinant value of LP. Adenosine triphosphate (ATP) - life energy and elements members of life particle were discussed such that axiomatic universal truth.

## Key words:

Life particle, 'Bion', Life time, Life Energy, Spontaneous origin of life, Elements of life.

## 1. Introduction:

Time moves not by pointers inside watch but same timescale moves out of watch in space. Seventh law of time is 'Law of particle'. Mathematical definition of line is an infinite point P, in a series.  $L = \sum \infty P \rightarrow$  in a series. Thus, line = sigma infinite points in a series.  $\Leftrightarrow$  Point  $\approx$  Particle,

it is corpuscular mathematical assumption in linear dimension of time  $\Psi$ .

Future  $\Psi_{\infty} \rightarrow$  present  $\Psi \rightarrow$  past  $\Psi_{\infty} = \Psi_{\infty}$ .

Time particle ( $\pi$ )  $\cong$  energy particles ( $\rho$ ) e.g. photon, thermion Higgs boson, positron, magnetron, cosmon and 'Bion' (life particle =  $k$ ), here,  $k = \kappa$ : LP.

Femi-to second =  $1 \times 10^{-15}$  S ^ zeta second =  $1 \times 10^{-21}$  S.

Greatest past time = era = 4 a-pouch, geologists say to be Pleistocene, Eocene, Mesozoic, Jurassic etc., then an ancient history followed by modern past was near to present.

Time  $\Psi$  follows ten laws, law of movement, law of opposition, law of energy, law of universe, law of 05 tense, law of infinite, law of particle, law of uncertainty, law of life time (L $\Psi$ ) and lastly, law of quality [1]. Ninth law is law of life time L $\Psi$  = chrono - biology. Mathematical definition of time line is likewise of infinite points in a series. But, L $\Psi$  = time from birth to death, in a bio math of growth and reproduction.

' $\Psi >> L\Psi$ .  $\therefore$  Life time = L $\Psi \epsilon \sim N \rightarrow M$ . (birth to death) Therefore, it could be represented as: L $\Psi \epsilon = \Psi_{\eta} \rightarrow \Psi_{\mu} = \Psi_{\pi}$  (here,  $\Psi_{\eta}$  = birth time,  $\Psi_{\mu}$  = mortality time and  $\Psi_{\pi}$  = life particle (LP). There are many types of life particles like human, animals, plants, alien and micro- organism on mars, studied as medical science, zoology, botany, xeno-biology and exobiology respectively [2^3].

Michail Zac (2013) is of the view that life particle is not only philosophical mathematics but it is a real phenomenon of nature. Therefore life particle follow physical and mathematical axiom. He studied dynamic model and formulized life particle and sub particles under mathematical principles and modern physics. He also indicated about artificial life by gene synthesis and robotics [4^5].

## 2. Set theory of life particle:

There is an inverse relation of universe and time in movement and sequence in their axiom. Therefore, time's law of particle is equivalent to the axiom of the 'Sum set or Union'. If  $x$  is a set of sets, then, LP is the union of all its members in a set [6-10]. Suppose, the set  $x$  is here a life particle (L.P), given by  $\{A, B, C\}$ . Here  $A, B, C$  are Adenosine tri phosphate (ATP), Deoxy ribose /Ribose nucleic acid (DNA) and Nicotine-amide adenosine hydrogen di-phosphate (NADH). These three element members are basic constituent molecules of life particle. All these consist of five basic elements Carbon(C), Hydrogen(H), Oxygen(O), Nitrogen(N) and Phosphorus(P) of the nature.

Therefore, LP =  $\{a, d, n\}$  here  $a = \text{ATP}$ ,  $d = \text{DNA}$  and  $n = \text{NADH}$ .

Here members  $\{a, d, n\}$  of set LP are all itself a sets.

ATP =  $\{C, H, O, N, P\}$ , DNA =  $\{C, H, O, N, P\}$  and NADH =  $\{C, H, O, N, P\}$ :

ATP  $\cup$  DNA  $\cup$  NADH =  $\{C, H, O, N, P\} \rightarrow$  LP.

Here  $\forall$  Elements  $\in \{C, H, O, N, P\}$  are also a set of { electrons, protons, neutrons }

Therefore, life particle is a set of sets and subsets.

$\{C, H, O, N, P\} \subseteq a$ ,  $\{C, H, O, N, P\} \subseteq d$ ,  $\{C, H, O, N, P\} \subseteq n$ ,

$\therefore a \subseteq d \subseteq n = \text{LP} = a \cup d \cup n = \{C, H, O, N, P\} \rightarrow$  LP.

$\Rightarrow C \cap a, n, d; H \cap a, n, d; O \cap a, n, d; N \cap a, n, d \wedge P \cap a, n, d$ . This denotes the intersection of  $a, d$  and  $n$ , i.e., the set whose elements are those common to  $a, d$  and  $n$ .

The molecular structure of ATP, (a) =  $C_8 H_{17} O_{13} N_5 P_3$ .

The molecular structure of DNA (d) =  $C_{39} H_{49} O_{24} N_{15} P_4$ .

The molecular structure of NADH (n) =  $C_{21} H_{29} O_{17} N_7 P_3$ .

' LP = {a, d, n} .'. The molecular structure of LP is = C<sub>68</sub>H<sub>95</sub>O<sub>54</sub>N<sub>27</sub>P<sub>10</sub>.

There is cardinality, N'= 5, (all and each)  $\forall \epsilon : LP = \{C, H, O, N, P\}$  are common in all three a, d, n :  $a \cap d \cap n \wedge F(a, d, n) \rightarrow a \cup d \cup n = LP$ .

In geometric bi-model, this is a paradox such that single model of pentagon is sufficient, represented in figure2, or pentagon inside triangle, as in figure 3 or triangle inside pentagon such that represented in figure 4.  $\sum \forall \epsilon = LP =$  consist of 5N' and 3N'.  $X = \{\epsilon : 5N'\}$ ,  $\wedge F(X) \rightarrow \{\epsilon : 3N'\} = LP$ .

### 3. Life-energy:

ATP is absolute life energy and it follow thermodynamics like physical energy,  $E = MC^2$ . Here, life energy is referred as Gibb's energy need for biochemical and biophysical osmotic regulation. This life energy also transforms into 1. Magnetism (magnet therapy) 2 .Electricity (nano ampere in bioelectronics) and, 3. Temperature (e.g. optimum 37°C for common bacteria), Some time seen surprisingly, a man producing immense heat from body, or sometime a man has high electric volt in his body, in nature an electric ray and lightening fire fly (*Dorilus Photeus*) can be observed. Laxicon.com of life particle i.e. yoga and meditation are exercise suggested to increase life energy. But actually, it is produced from food metabolism. Life energy has epsilon relation to the life time and environmental time [11-14].

#### Forcing axiom:

Forcing axiom of set theory assures that certain existential statements are absolute between the universe and its ideal forcing extensions of all sets and subsets and their element members. This employs to Sir Isaac Newton (1666) law of universal gravitational force is a constant, each particle attracts to other particle. The attraction force (F) between two particles is in proportion of the multiplication of their masses inversely proportion to square of their distance.

$$F(\text{force}) \propto Mm / r^2. \Rightarrow F = G Mm/r^2.$$

This G= Gravitational constant= 6.67x10<sup>-11</sup> dyne/cm<sup>2</sup>/ gm<sup>2</sup>.

Although this force is minimum and negligible, therefore if air resistance is same, heavy and light objects fall down to earth by same rate by acceleration due to gravity (g) of the earth.

$g = Gm/R^2$ , here, m = mass of falling object on the earth having radius R. Gravitational constant plays an important role to combine elements each other to make a large molecule and large molecules combine to make life particle in spontaneous generation. Here, mathematical axiom of union employs for construction of life particle.

#### 5. Axiom of Union:

The axiom of union states that for each set x: there is a set y, whose elements are precisely the elements of the elements of x. or, if x is a set of sets, the union of all its members is a set.

Suppose the set x is life particle made up of ATP, DNA and NADH or LP = {a, d, n}. Suppose further that, a is a set given as = {C, H, O, N, P} and same  $d \cap n$  is a set given as {C, H, O, N, P}. The axiom says that members {C, H, O, N, P} are each also a set.

The operation ATP  $\cup$  DNA  $\cup$  NADH is that the empty set  $\emptyset$  is also a member of LP. Therefore,  $\emptyset \cup \{\emptyset\} = \{\emptyset, \{\emptyset\}\}$  is a member of x. and  $\{\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}$  is a member of  $x = LP = ATP \cup DNA \cup NADH = \{C, H, O, N, P\}$  due to mathematical axiom of union.

#### 6 Axiom of the Power Set:

For any set x the set y consisting of all the subsets of x exists. The set of all subsets of x is called the 'power set' of x. Although y is defined by a property, namely that its members are subsets of x. Axiom of power set =  $X^Y$ . Here X= life particle, Y = environmental factor and  $\Psi$ = time.

In this way the multiplication of micro-organism and cell number, as unit of life, body increases in embryological growth by mathematical axiom of power set. Pandemic condition of 'Covid19' is an example of application of axiom of power set. It is in both directions, such that in programmed cell death of life, it employs in negative direction. Therefore, all cells of life die in a manner of negative power set, such that all life- parameters sudden drop to zero.

#### 7. Life particle in Xeno-biology (Aliens study):

James Emerson Reynolds (1983) First thought about the heat stability of silicon compounds might allow life to exist at very high temperature. Julius Scheiner (1891), Astrophysicist at the University of Potsdam made theory of life based on silicon and guessed that Mercury, Venus, Mars, Jupiter, Saturn, and Uranus might contain life. John Haldane (1929) viewed that life might be found deep inside a planet based on partly molten silicate type of rock that consists of silicon and oxygen. That environment could be same as a volcanic terrestrial planet's crust or dark deep ocean bottom and the oxidation of iron might provide energy to aliens [15,16^17].

Axiom 6 of mathematics is axiom of replacement; it states that, replacement = separation and substitution, Carbon is replaced by Silicon in alien. It is different from *robotics* in physics (man made false life). But,  $\forall$  real life particles, LP, are either made up of Carbon based compounds or Silicon based compound. Since, in common life = organic = carbonic, the chemistry of carbon atom is suitable for a skeleton of organic compounds in the set  $x = LP = \{d, a, n\}$ ,  $\approx LP = \{C, H, O, N, P\}$ .

But, in aliens, scientists thought of Carbon (C) is replaced by Silicon (Si) and probability is such that life energy conversion is directly from environmental electromagnetic energy. An assumption for alien to be Silicon (Si) based life is the meteorites mainly

containing silicates, called aerolites. Si is also present in sand, quartz, flint, granite and clay. It is estimated that it is present 25.7% of earth's crust by weight. But, it is suggested much more in another planet and their satellites. Xeno-biology follows axiom of replacement of C with Si. There are researches on signaling the aliens, but it should be assure that alien should behave friendly and signal from alien be encoded.

Figure1 represents the Carbon and Silicon atoms. If, in an alien C is replaced by Si, by law of similarity of group, element O should be replaced by any one of {S, Se, Te, Po, Ur.} ≈ Probability (P):  $P \Rightarrow S > Se > Te \cong Po < Ur$ .

, ' , S ≈ Ur, are most probably, by logic of symbol ■.

**8. Axiom of uncertainty:**

Life particle is often referred to as the recirculation or good and bad imp simulation. This property of LP is also applicable for description of life time or chrono - biology. But this theory in mathematics, in a condition, it is accepted, if and only if, it is true for all body forms of LP, not for *Homo sapiens* only. Life particle is spontaneously constructed and mutated too, by various environmental factors, like temperature, moisture, air, light, radiation and biotic stress. The absence of any one factor can inhibit construction of quality and number of any life particle. In this way, this theory falls under axiom of uncertainty.

**9. Triangle and pentagon bi model of life particle:**

Christian Berger-Vachon studied a mathematical modeling for biomedicines. There are five member elements commonly construct three basic molecule members of life particle. Their ratio is  $5/3 = 1.6666 \approx$  Fibonacci ratio. Exact Fibonacci ratio = Golden ratio ( $\Phi$ ) = 1.618033. In the ratio of elements {C, H, O, N^P} in construction of DNA, ATP ^ NADH, there is at least one golden n<sup>0</sup> and/or Euler number / constant, present among C skeleton and other elements as shown in table2 [18 ^19].

Figure1 represents atomic structure of C and Si. In an alien, C is replaced by Si and probability is that also oxygen (O) could be replaced by sulfur or uranium in aliens.

Figure2 represents simply that LP is made up of 5 elements. Figure3, figure4 and figure 5 represent that five elements make three basic components of LP. Similarly, figure6, figure7 and figure8 represent the relation between five elements and three components of LP.

In the pentagon model of life particle, each inner angle ( $\theta$ ) of pentagon =  $72^\circ$  and inner angle of isosceles triangle has  $60^\circ$ . The ratio between both angles = 1.2; There is no difference with man, animal, plant, alien, or microbe in LP. Therefore LP model is universal truth. An alien could be with  $\mp$  elements or replacement of one or more elements from the set of 5 elements {C, H, N, O, and P}. Figure 6 , and figure 7 represents to epsilon relation among five elements members of sub set DNA (d), ATP (a) ^ NADH (n). But most appropriate model of life particle simulate to figure 8, representing totality of bi model of 3 triangles and a pentagon, where each and every angle and/or arm represents an element. Astral origin theory of life is the star itself a bi-model of life particle. "Panspermia" theory of life origin declares that LP came from astral bodies.

I. e. Panspermian definition: Astral body  $\dots \rightarrow$  Life Particle.

, ' , LP (k) ≈ Star shape of pentagon made up of 3 triangles,  $\triangle ONd$ ,  $\triangle HPa$ , and  $\triangle CPn$ . as in figure 8, it is depicted.

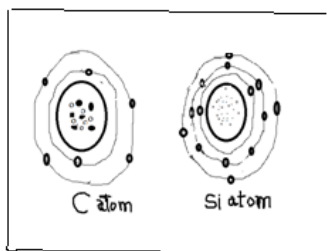


Figure1

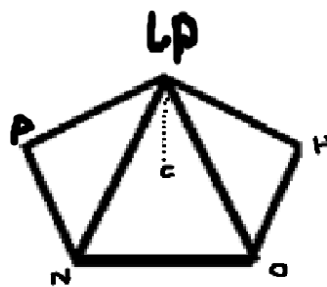


Figure2

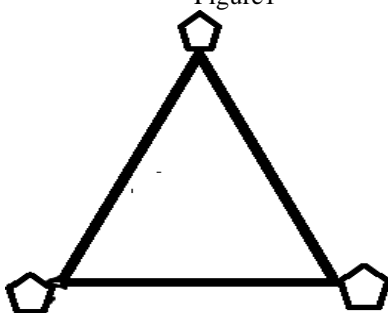


Figure3

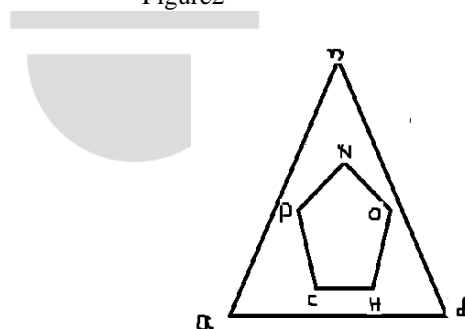


Figure4

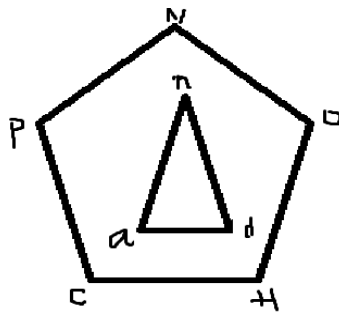


Figure5

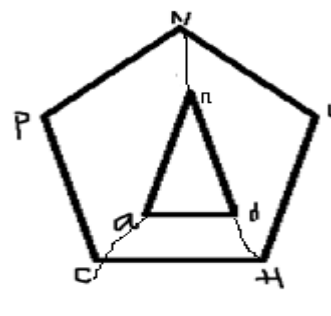


Figure6

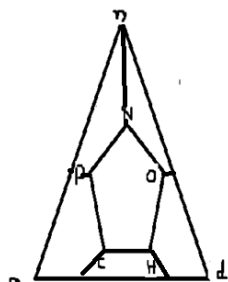


Figure7

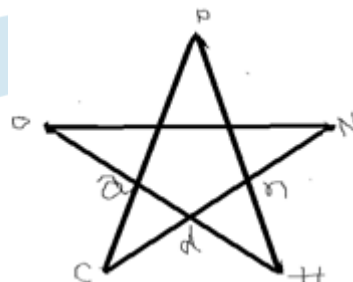


Figure8

**10. Experimentation on origin and growth of life particles:**

Sr. Clara (2012) experimented to observe changing 3.5 liters Curd (milk product) per day under microscope. She shown the photographs of lives produced by spontaneous generation as the curd was fermented under supervision after boiled milk 3.5 liters (80%), adding in it, a pure *Citrus lima* juice. So that, no contamination of life particle could happen from air or from using materials. At first, life of ultra size, then microscopic, then larger bacteria and finally, in 20 days, maggot worm is generated. She presented 40 photographs and proved spontaneous generation of life. The size of the body of life gradually increases in proportion of time and concentration of curd increases day by day to be semisolid up to this time maggot (mud worm), the life of 1.0 cm. to 1.5 cm. was generated. The size, number, and transformation from unicellular bacteria to multi cellular worm  $\propto$  time, and reduction of weight of media (curd) were in proportion of time. Here environmental factors e.g. temperature, are important in spontaneous generation of LP [20<sup>21</sup>].

**11. Paradox in modeling of life particle:**

There is not any symbol for happy and/or sorrow in mathematics. But mathematicians can calculate a secretion rate of smiling hormone, endorphin and smiling index. It employs to stimulus and response ratio in mathematics. Most confusion in life particle modeling is regeneration of divided part of body in *Protozoa* and *Hydra*. Totipotency, cell theory and microbiology do mega confusions in this modeling of life particle. But yet biologists prove ethics to be real. Such that bacteriophage microbe makes ever uncontaminated to holy Ganga water by eating the bacteria of contamination. A symbiosis get develop inside a life, even in fetus with its birth time. In embryo form of life, it is life inside life and life inside life and if each cell of body is individual life then again big confusion. A life to be union of lives, but one body have only one life particle. This proved a great paradox in the theory of life particle.

The properties of five basic elements of LP are collected in table1 from Clark’s table and calculation. Their ratio is represented in table2 and their ethical and metaphysical philosophy along with Xeno-biology is tabulated in table3. Chemo-osmosis has osmotic potential energy in ATP synthesis, i.e. basic bio energy. This energy, in term of cosmic wave and its cosmic particle is “life particle.” ‘;’ Electron + Proton + Neutron = Atom  $\approx$  DNA + ATP + NADH = life particle.

**Table1. Property of life elements:**

Sr.	Element/Property	H	C	N	O	P	Si
1	Atomic N <sup>o</sup>	1	6	7	8	15	14
2	Atomic weight	1.00797	12.01	14.007	16.0	30.97	28.09
3	Atomic density @293 <sup>0</sup> K (g/cm <sup>3</sup> )	0.08987	1.9	1.165	1.33	2200	2300
4	Electro negativity	2.1	2.55	3.04	3.44	2.1	1.9
5	Atomic radius	154	71/77	71	60	100	111
6	Ionization energy	13.598	11.260	14.534	13.618	10.486	8.151

7	Melting point °C	-258.99	3550	-210	-218.4	44.0	1414
8	Boiling point °C	-252.6	4827	-195.8	-183	279	3265
9	Oxidation state	1 <sup>+</sup>	+4,+2,-4	+3,+2,+4,+5	-2	+3,-3,+5	+4
10	Electron structure	1S <sup>2</sup>	1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>2</sup>	1S <sup>2</sup> 2S <sup>2</sup> 2p <sup>3</sup>	1S <sup>2</sup> 2S <sup>2</sup> 2P <sup>4</sup>	(Ne)3S <sup>2</sup> 3S <sup>3</sup>	[Ne] 3S <sup>2</sup> 3P <sup>2</sup>
11	Cristal structure	Hexagonal/cubic	Hexagonal	Cubic	Rhombic	Cubic	Cubic
12	% present / earth weight	0.14	0.032	78	21	0.10	27.7
13	Physical state	Gas	Solid	Gas	Gas	Solid	Solid
14	Present in LP.	36.9%	28.1%	10.8%	20.4%	03.6%	—

**Table2. Ratio of Carbon and elements of life component: DNA, ATP and NADH and LP.**

Serial N <sup>o</sup>	Element/Compound	C / H	C / O	C / N	C / P
1	DNA	0.79591836734	1.625	2.6	9.75
2	ATP	0.47058823529	0.6153846153846	1.6	2.66666...
3	NADP	0.724137931	1.235294117647	3.0	7.0
4	Life particle	0.715789473842	1.2592592592592	2.5185185185185	6.80

**Table3. Ethical and metaphysical significance of the elements of LP.**

Sr.	Element/Property	H	C	N	O	P	Si
1	Application	Drink	Food	Respire	Mind	Warmth	Refluxing and radiation
2	Representation from universe	Water	Earth	Air	Sky	Fire	Element of mirror
3	Base of representation	High presence	Skeleton of organic compound	High presence	High presence (O <sub>3</sub> )	Burning nature	Astral life
4	Biophysics	Taste	Touch	Listen	Looking	Smell	Electro-magnetism
5	Sensory	Tongue	Skin	Ear	Eyes	Nose	Antenna
6	+Effect	Ascetics	Love	Kind	Brilliance	Forbid	Saint, Alien
7	-Effect	Greed	Sex	Cruelty	Lazy, dull	Cruelty	Unhappy alien
8	High distribution	Marine and aquatic life	Geo biology and hibernating lives	Birds, insects, flying lives	Intelligent lives: men, monkey & dolphins.	Life in extreme temp.	Aliens and other astral life

Table 3 represents ethical and metaphysical significance of the elements of life particle: LP= {C, H, O, N, and P} representing, on the basis of % of presence, and nature (property), respectively to {soil, water, sky, air, and fire} = Nature.

**12. Matrix of life particle:**

Chhalotra G P (1997), studied material indices of bioelectrical parameters of green leaves and calculated cofactor of the matrix of bioelectric energy of green leaves of trees [22]. To apply matrix theory, molecular formula of LP= C<sub>68</sub> H<sub>95</sub> O<sub>54</sub> N<sub>27</sub> P<sub>10</sub>. = > ∑ atoms = 254. The percent present number of atoms of individual elements C, H, O, N ^P, = 26.77%, 37.4%, 21.25%, 10.62%, ^ 3.93% respectively. In construction of matrix of LP, here, R<sub>1</sub>= percent of number of atom, R<sub>2</sub> is atomic number, R<sub>3</sub> is atomic mass and R<sub>4</sub> is electro valiancy of elements (from table1). Column C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> and C<sub>5</sub> are elements C, H, O, N ^ P respectively.

$$A = \begin{bmatrix} 26.77 & 37.4 & 21.25 & 10.62 & 3.93 \\ 6 & 1 & 8 & 7 & 15 \\ 12 & 1 & 16 & 14 & 30 \\ 4 & 1 & -2 & 3 & 5 \end{bmatrix}$$

Therefore, matrix of life particle can be written as: :-

To make a square matrix of life particle A<sub>3x3</sub>, with the ratio of DNA, ATP ^NADH:

Total number of atoms in DNA from its molecular formula = total 131 atoms.

Total number of atoms in ATP from its molecular formula = total 47 atoms.

Total number of atoms in NADH, from its molecular formula = total 71 atoms.

The ratio of total number of atom between DNA: ATP: NADH = 2.78: 1: 1.5

Molecular mass of DNA, from its molecular formula:

$$= (39 \times 12) + (49 \times 1) + (24 \times 16) + (15 \times 14) + (4 \times 30) = 468 + 49 + 384 + 210 + 120 = 1231.$$

Similarly, the mass of ATP from its molecular formula:

$$= (10 \times 12) + (16 \times 1) + (13 \times 16) + (5 \times 14) + (3 \times 30) = 120 + 16 + 208 + 70 + 90 = 504.$$

The mass of NADH from its molecular formula:

$$= (21 \times 12) + (27 \times 1) + (14 \times 16) + (7 \times 14) + (2 \times 30) = 252 + 27 + 224 + 98 + 60 = 661.$$

Ratio of molecular mass between DNA: ATP: NADH = 2.4: 1: 1.8

∴ LP = {d, a, n}. ∴ Molecular weight of LP from its molecular formula:

$$= (68 \times 12) + (95 \times 1) + (54 \times 16) + (27 \times 14) + (10 \times 30) = 816 + 95 + 864 + 378 + 300 = 2453$$

The ratio of mass between LP ^ DNA = 2453 / 1231 = 2;

The ratio mass between LP ^ ATP = 2453 / 504 = 4.8;

The ratio mass between LP ^ NADH = 2453 / 661 = 3.7;

By above, a square matrix, A' is written, where, C<sub>1</sub>, C<sub>2</sub>, and C<sub>3</sub> = DNA, ATP ^ NADH respectively. R<sub>1</sub>= ratio of number of atom, R<sub>2</sub>= ratio of molecular mass weight, and R<sub>3</sub>= Ratio of DNA, ATP ^ NADH each with LP, of molecular mass, Here, R<sub>1</sub> and R<sub>2</sub> are ratio among DNA, ATP ^ NADH, But R<sub>3</sub> is ratio of mass between LP ^ DNA, LP ^ ATP, and LP ^ NADH respectively.

Therefore, matrix, A' of LP:

$$LP = A' = \begin{bmatrix} 2.78 & 1 & 1.5 \\ 2.4 & 1 & 1.8 \\ 2 & 4.8 & 3.7 \end{bmatrix}$$

.....Eq.1.

$$\text{Cofactor of number of atom in DNA} = \begin{bmatrix} 1 & 1.8 \\ 4.8 & 3.7 \end{bmatrix}$$

At the position of matrix, a<sub>11</sub>: Cofactor of number of atom in DNA = 3.7 - 8.64 = - 4.94. Similarly,

$$a_{21}: \text{Cofactor of molecular weight of DNA} = 3.7 - 7.2 = - 3.5$$

$$a_{31}: \text{Cofactor of the ratio of mass of DNA in LP} = 1.8 - 1.5 = 0.3$$

$$a_{12}: \text{Cofactor of number of atom in ATP} = 8.88 - 3.6 = 5.28$$

$$a_{22}: \text{Cofactor of molecular weight of ATP} = 10.28 - 3 = 7.28$$

$$a_{32}: \text{Cofactor of the ratio of mass of ATP in LP} = 5 - 4.3 = 0.7$$

$$a_{13}: \text{Cofactor of number of atom in NADH} = 11.5 - 2 = 9.2$$

$$a_{23}: \text{Cofactor of molecular weight of NADH} = 13.3 - 2 = 11.1$$

$$a_{33}: \text{Cofactor of the ratio of mass of NADH in LP} = 2.78 - 2.4 = 0.38$$

### 13. Matrix determinant value of LP:

From equation1, Determinant value of matrix A' of LP:

$$|A'| = 2.78 \times \begin{vmatrix} 1 & 1.8 \\ 4.8 & 3.7 \end{vmatrix} - 1 \times \begin{vmatrix} 2.4 & 1.8 \\ 2 & 3.7 \end{vmatrix} + 1.5 \times \begin{vmatrix} 2.4 & 1 \\ 2 & 4.8 \end{vmatrix}$$

$$\begin{aligned} |A'| &= 2.78 \times (3.7 - 8.64) - 1 \times (8.88 - 3.6) + 1.5 \times (11.52 - 2) \\ &= 2.78 \times (- 4.9) - 1 \times 5.28 + 1.5 \times 9.52 \\ &= - 13.622 - 5.28 + 14.28 \end{aligned}$$

∴ Determinant value of matrix A' of LP = - 4.622 ■.

### 14. Discussion:

Study of life particle is an essential element of astrobiology along with all biome, for example, alien life, mars microbes (exobiology) and space biology exploration. A distil water changes in to contaminated bacteria full, in a week, but, water of Ganga river does not so, due to presence of bacteriophage. Contamination of common water is equally proportional to the time, temperature and quality of water [29, 30]. Life particle of positive energy are symbiosis e.g. *Escherichia coli* in human intestine helping protein digestion, while, of negative energy causes serious disease in pathology. For example: *Tuberculosis* bacteria, *Corona* virus, *Plasmodium* protozoa (malaria fever) etc. An artificial life of microbes has been developed by advance gene synthesis centers for commercial application. This is totally different from robotics. It is gene synthesis and development of new micro organism. But it must be sure that it would not to be a pathogen. Nano-biology of life particle employs to the nano-technology in to the life, i.e. implant of computer programmed silicon chips in to body to correct or increase its activity. This is an application of mathematics, superconductor, ceramics and computer. DNA, ATP, and NADH are nano-molecules and essential part of life science. Therefore, life particle research could be considered as nano-biology [12]. Life particle must satisfy the conditions of particle theory and life energy must follow thermodynamics i.e. law of conservation, transformation and enthalpy. In this way, life energy is bioelectronics of production of ATP - bio energy through electron transport system 'ETS' [13]

Biodiversity is the variety and variability of species. There is a clear mathematical variable in DNA or RNA follow the genetic biodiversity in respect of count and constitution of DNA. It makes individuality of the life particle to be good or bad.

Life time could be considered as 'chrono-biology'. It is the duration period from birth time to death time. During that, a growth curve is made between body growth and time. If we talk of human life time, it runs from fetus to baby, juvenile, youth, mid age, oldness, senescence and at last death. Life is started in fetus and ends at death. In oldness, there is different ability of sense organs and bioelectricity of ATP production. [10, 11, 13]

$$\lim_{x \rightarrow x_0} f(x) = \Psi_{\epsilon} = \text{Life time} = \Psi_{\eta} \rightarrow \Psi_{\mu} = \Psi_{\pi}$$

(Here,  $\Psi_{\eta}$  = birth time,  $\Psi_{\mu}$  = mortality time and  $\Psi_{\pi}$  = LP).

Further, mathematical axiom of replacement could be considered for an alien life to be silicon based life instead of carbon based common biodiversity [18]

LifeParticle.com provides live broadcasting and videos on demand of guided meditations and mind full living tips that anyone can use anytime and anywhere. This internet station aims to share the power and possibilities of meditation through its videos, articles, and active community [23 ^24]. Life is considered as combination of three elements, body (*soma*), soul (*psyche*), and spirit (*pneuma*). There is an abundance of literature for ethical and yogic exercise to increase life energy, and it is only for human life by holiness, meditation, exercise, and application of hypnotic material like prism, mirror, crystal ball etc. [25-26]. But, it could not be applied for all life particles. Since, mathematics of life particle is universal and it must satisfy scientifically the law of particle and thermodynamics for all, including extreme life living in, very low temperature, very high temperature, in high pressure, in absence of light or in high hazardous radiation [27].

Natural construction in spontaneous generation of life could be a scientific study on life particles [28]. There is mathematical modeling and simulation in various sectors of science [33-36] and following these studies a modeling and simulation of LP could be quite considerable.

A life particle changes its life energy and structure by mutation. The change of DNA in quantity, number and sequence of its constituent adenine, guanine, thymine and cytosine results into speciation = change into new organism such as observed in spontaneous generation in curd [13]. An example of mutant could be observed in development of high lambda variant of covid-19 to be dominant in disease triangle (pathogen, host, and environment).

If, life particle = LP, then, the size, shape, volume, weight, cofactor ^ matrix – determent value (delta) could be studied. Yet, it's just cosmic particle, *bion*, with ultra weight of cosmic of life energy, like light is just a radiation, it has no volume i.e.  $V_{1p} = \epsilon_0$ . Life energy = bioelectricity + bio temperature + ATP. + G (6.67 dyne / cm<sup>2</sup>/gm<sup>2</sup>) + bio- mechanical energy + osmotic (Gibbs) energy.

## 15. Conclusion:

Universe is itself universal set of infinite cardinality. Where, each member element is itself a set. =>  $X = \{U\} : S = \{s^1, s^2, s^3 \dots s^n, s^{n+1}, \emptyset\}$ . Life particle is one of these members. Model of life particle satisfies the set theory such that a life particle is set of sets. Each member element too is a set of sets. It is similar to the cup inside cup and cupules in inner cup. Universal gravity 'G' constant attracts (with  $6.66 \times 10^{-8}$  dyne/cm<sup>2</sup>/gm<sup>2</sup> force) to the elements C, H, O, N^P to make three compounds, which are member elements of life, DNA, ATP, NADH and these molecules make life particles by attraction of G.

In a LP, five basic elements make 3 basic molecule of life with a ratio of 1.66 near to mathematical Golden ratio. A great paradox that trident be inside pentagon or *vice versa*. Each basic element members C, H, O, N, ^P are also a set of their electrons, protons, and neutrons. Modern physics deals with neutrons are also a set of members like meson, lepton, and hadrons, quark and Higgs boson. The shape of LP is star shape (actino-morphic), it is a pentagon of cosmic radiation.  $\forall$  Angles of pentagon = one of {C, H, O, N, ^P}.  $\forall 5$  angles make a star, made up three triangles of DNA, ATP and NADH. In this way, a bimodal of life particle a pentagon by three triangles, as it is represented in figure8 is considered.

Matrix calculation of life particle by making a square matrix  $A_{3 \times 3}$ , determinant value of matrix A' of LP = - 4.622 ■.

## Reference:



1. Mahar, H D. "Biome in the glimpse of Universe' UGC National Conference: Dept. of physics, RGPG College Ambikapur, CG, India; Abstract 24; (04 March, 2011).
2. Mahar, H D. "Application of microbiology in astrobiology' UGC National Conference: Advances in Biological Sciences, Holy Cross women's College Ambikapur, CG, India ; Abstract 10 ; ( 02& 03 March,2012).
3. Mahar, H D. "Commercial consideration of Life Particle Research' UGC National Conference: I T in Economic development in CG." Department of Commerce, RG PG College Ambikapur, CG, India; Abstract 27; (07& 08 February, 2014).
4. Michail Zak: "Particle of Life: Mathematical Abstraction or Reality?" Jet Propulsion Laboratory, California Institute of Technology, Senior Research Scientist, (Emeritus), Cypress, CA, USA; **Series:** Mathematics Research DevelopmentsBISAC:SCI040000.December2013  
<https://novapublishers.com/shop/particle-of-life-mathematical-abstraction-or-reality/> Retrieved on 14. 07. 2021.
5. Amazon.com: ISBN: 978-1-62948-582-9Categories: Mathematics and Statistics, Mathematics Research Developments, Topicsags: 9781629485829, 9781629485850, mathematicsandstatistics.  
Retrieved on 14. 07. 2021.
6. Mahar, H D. "Interrelation ship between Law of Time and Mathematical Axiom ", UGC National Conference on "Recent developments in Mathematics and its application in other branches of sciences ": Dept. of Mathematics, Kalyani Collage cum Kalyani University, Kalyani , Noida, W.B. India ; Poster Table. 06; (15 December, 2016).
7. Mahar, H D. "Law of Time and Mathematical Axiom "International Conference on Modeling and Simulation MS"17, Organized by AMSE France and The Institution of Engineering and Technology, and University of Kolkata at HHI Hotel Kolkata.
8. WB India; Sec. C. 16, (4-5 November 2017).
9. Mahar, H D. Law of Time and Mathematical Axiom. Springer Publication of proceeding;[https://link.springer.com/chapter/10.1007/978-3-319-74808-5\\_37](https://link.springer.com/chapter/10.1007/978-3-319-74808-5_37)[6/22, 17:16]. Retrieved on 14. 07.2021.
10. Mahar, H D. "Concept of Life Particle in Math's axiom and law of time", CCOST National Conference on "Role of mathematics in development of society": Dept. of Mathematics, RGPG College Ambikapur, CG, India; Abstract 39; (22 December 2018).  
Mahar, H D. "Law of Life Time and its application in bioelectronics", UGC National Conference on Energy, Industry & Environment": Dept. of Physics, Govt. Vivekananda College Manendragarh, CG, India; Abstract 24; (09 October, 2015).
11. Mahar, H D. "Life Time and Affinity among Biosensoriales and Bioelectricity", UGC National Conference on Space Science & Environment": Dept. of Physics, RGPG College Ambikapur, CG, and India; Abstract 26; (21& 22 November, 2015).
12. Mahar, H D. "Nano Biology of Life Particle", INSA National Conference on Nano science and nanotechnology (NCNN'14)": Faculty of pharmaceutical Sciences, Shri Shankaracharya Technical Institute Bhilai, CG, India; Abstract 67; (08 November, 2014).
13. Mahar, H D. Mathematical Relationship between Astrobiology and Chronobiology"
14. ' UGC National Conference on "Modern Life Sc.: Perspective and prospects" Government College Bhakhara, CG, India; Abstract 51; (05 May, 2015).
15. Argüelles, José and Lloydine Aruelles (1989–1996). The Discovery of the Law of Time (PDF) (Tortuga 13:20 Ed); Planet Art Network, 2017.
16. <https://tortuga1320.files.wordpress.com/2017/12/discovery-of-law-of-time-by-Jose-and-LloydineAruelles.pdf>. Retrieved on 14. 07. 2021.
17. James Emerson Reynolds (1983) "Experimental Chemistry: For Junior Students" (Classic Reprint from Ireland) ISBN-13: 978-1330074268
18. <https://www.amazon.com/Experimental-Chemistry-Students-Classic-Reprint/dp/1330074262>. Retrieved on 14. 07.2021.
19. JuliusScheiner, "Silicon-BasedLifeintheSolarSystem"
20. <https://link.springer.com/content/PDF>  
<https://link.springer.com/content/PDF> Retrieved on 14. 07. 2021.J. B. S. Haldane and the origin of life | Request PDF  
[https://link.springer.com/10.1007%2F978-3-642-11274-4\\_690](https://link.springer.com/10.1007%2F978-3-642-11274-4_690)  
& Haldane's Conception of Origins of Life | Springer Link: <https://link.springer.com>. Retrieved on 14.07.2021.
22. Christian Berger Vachon; "Mathematical modeling in cochlear implant." French medical journal;  
<https://agenda.direct/rendez-vous/christian-berger-vachon/villeurbanne/medecine-generals/10003036497>;  
Retrieved on 14.07.2021.
23. Gary Meisner: The Phi Guy; Author of [www.goldennumber.net](http://www.goldennumber.net); Developer of Phi Matrix software at [www.phimatrix.com](http://www.phimatrix.com);MathematicsoftheGoldenRatio.  
<https://www.goldennumber.net/golden-ratio>  
<https://www.goldennumber.net/golden-ratio-history/22-06-2021>  
Retrieved on 14.07. 2021.Sr. Clara Toppo "A Study on Spontaneous Generation ", UGC National Conference

- on “Advances in Biological Sciences” Faculty of Biology ,Holy Cross women’s College Ambikapur, CG, India ; Abstract 11 ; (02& 03 March,2012).
24. Mahar, H D. “Concept of Life Particle and biodiversity”, CCOST National Conference on “Biodiversity and environment”: Dept. of Botany, UVS College Latori, Surajpur CG; Invited Lecture 2; (12 February 2019).
25. Chhalotra G P; “Simulation of rectified properties of green leaves with CRO displays and random distribution of material indices”. Indian Journal of Electrical Engineering ,Kolkata: UDC; 581; 45: 621; pp 314-369(1997).H D Mahar; “Law of Life time and it’s in application social welfare. Seventh International Conference on Science in Society / Common Ground Publishing Chicago, Illinois, United States of America: Paper N<sup>o</sup> 75; (1st to 2nd October 2015) <http://science-society.com/the-conference-2015>. Retrieved on 14. 07. 2021.
- Ilchi Lee; “Life Particle.com; Meditation: A Practical Guide to Healing and Transformation” Paper back; Kinsley Publication USA. Life Particle Meditation provides a world of wonder, creativity, love, and peace. (26 September 2013)
- [https://www.amazon.in/Life-Particle-Meditation - Practical Transformation /dp/1935127594](https://www.amazon.in/Life-Particle-Meditation-Practical-Transformation/dp/1935127594). Retrieved on 14. 07. 2021. Stephanie South; Jacob Wyatt; Ishram Tansley; Kelly Harding, Ruben Llinas; Nickki Lee Hill; Mertxe Zuza; Law of Time.org. Post 156, Ashland OR 97520, USA; Music, meditation and exercise, to reduce stress inmetaphysics. <https://lawoftime.org/contact-us/> Retrieved on 24-06-2021.
26. Lexic.us/ Lexicographical Neighbors of nanobiophotonics/ Nanobiology
27. <https://www.lexic.us/https://www.google.com/search?q=Lexic.us&oq=Lexic.us&aqs=chrome.69i58j69i57.9052j0j15&sourceid=chrome&ie=UTF-8>. Retrieved on 14. 07. 2021.
- LifeinextremeenvironmentGoogleScholar[https://scholar.google.co.in/scholar?q=life+in+environment&hl=en&as\\_sdt=0&as\\_vis=1&oi=scholar](https://scholar.google.co.in/scholar?q=life+in+environment&hl=en&as_sdt=0&as_vis=1&oi=scholar). Retrieved on 14. 07. 2021.
  - In “The Mathematics of Life”, Ian Stewart [https://books.google.co.in/books/about/The\\_Mathematics\\_of\\_Life.html?id=u4X4cRaZIJUC&utm\\_source=gb-gplus-share](https://books.google.co.in/books/about/The_Mathematics_of_Life.html?id=u4X4cRaZIJUC&utm_source=gb-gplus-share). Retrieved on 07. 07. 2021.
28. John Adam; ‘The Mathematics of Life’, Ian Stewart Basic Books, pp300,(2010).
- ISBN: 978-0-465-02238-0; Retrieved on 14. 07. 2021.
29. Bordyugov G, Westermarck PO, Korenčič A, Bernard S, Herzel H; “Mathematical modeling in chronobiology: Institute for Theoretical Biology”, Humboldt University, 43, 10115, Berlin, Germany;17:335-357, (2013). Grigory.Bordyugov@hu-berlin.de Hand b. Exp Pharmacology. Doi: 10.1007/978-3-642-25950-0\_14; Retrieved on 14.07.2021.
30. Brown, James (2008). “Philosophy of Mathematics” New York: Rutledge. <https://www.routledge.com/Philosophy-of-Mathematics-A-Contemporary-Introduction-to-the-World-of-Proofs/Brown/p/book/9780415960472>; Retrieved on 14. 07.2021.
31. Mehrez Samir Zaki Mohamed (Retired General Police Officer , St. Heliopolis Cairo Egypt) “Mathematical modeling in Roadways and Vehicles lighting” Actes des Int. Conf. M.S. 2004 Lyon, Villeurbanne, pp10.17-10.21(2004)
32. Ike, I.S. L. E. Aneke and G. O. Mbah “Mathematical Modeling and Simulation of a Diffusion Process in the Human Bloodstream” AMSE JOURNALS –2014-Series: Modeling C; Vol. 75; N<sup>o</sup> 1; pp 1-12, (Feb. 2014) Hironmoy Mondol, Uzzwal Kumar Mallick and Md. H.A. Biswas: “Mathematical modeling and predicting the current trends of human population growth in Bangladesh” AMSE JOURNALS –2018-Series A: General Mathematics; Vol. 84; N<sup>o</sup> 1; pp 56-72, (May, 28, 2018).
33. Jain, S. “Modeling of Fourier elimination technique for multi-objective linear programming problem” Advances in Modeling. Series A. General Mathematics; 2009, Vol. 46, n<sup>o</sup> 1, pp. 70-80, (2009)
34. Omale D, and Gochhait S: “Analytical solution to the mathematical models of HIV/AIDS with control in a heterogeneous population using Homotrophy Perturbation Method (HPM)”.AMSE journals-AMSE IIETA-Series: Advances