

Biogenetic theory

Encoding the nuclear reality

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1) Abstract

This work profoundly change the way we conceive chemical processes, giving physical meaning to the atomic orbital, considered today a pure mathematical entity. The problem of the origin of life leads us to this new vision of atomic processes as forces us to include, in the study of chemistry, the spatial and temporal parameters of Relativity Theory.

Conservative processes, in fact, typical of living beings show a direct relationship with the time parameter.

From a point of view of physics the theory has interesting implications as the same logic of life provides an opportunity to improve the statistical study of the atomic world through a high level of abstraction.

2) Introduction

The contents of this transcript may surprise someone, but the problem of the origin of life has become urgent. We are forced therefore to abandon hypotheses that want chance to be the true creator of life and suggest another hypothesis which excludes chance as main factor.

A sharp change of direction.

Two important changes take place: the first is the statement that the way life relates to its space-time is not the same as that of a rock mountain.

The second is that the periodicity of properties of chemical elements depends on a fixed ratio, based on one particular relationship between the frames of reference of atomic nucleus and electrons in rotation.

Two changes that will allow us to find a meeting point between chemistry and biology and ultimately the mechanism that triggers life.

Chance is not removed because it remains a key factor for life, it shows the environment in which life processes take place.

3) Why time and space are correlated with life processes

Conservation is the primary characteristic of life. Together with duplication and evolution, that are also conservative processes, it allows us to distinguish life from non-living matter.

The meaning of the term conservation stresses inherent capacity of a body to remain unchanged over time. In life this feature is still present and, through evolutionary processes, it develops constantly.

The problem is that conservative processes, regardless of the time parameter, cannot even be thought. If we want to be realistic we must therefore consider that time in life plays an important and active role. The main problem refers to understand how and why.

If life were perfectly placed in a coordinate system, it would have no need to deal with the passing of time.

The same, but with different motivations, can be told with reference to the parameter space.

Can we say that life living space is a standard as any object immersed in a specific coordinate system?

The plastic and adaptable forms, movement, change, are not perhaps signs that space has experienced abnormally?

The examples on how peculiar life relates to space-time could be endless.

If we throw a glass on the floor, the glass does not oppose any reaction other than the one resulting from its own mass.

But if we throw a cat from the first floor of a house, we risk of being scratched, while the cat would not get any wound, since his anatomy prevent similar events. Saying that life does behave abnormal than the ordinary matter seems very reductive.

It would be better to investigate from where this unusual way of living space time comes.

4) Why chance cannot create life?

Chance is considered, although always with less conviction, the true source of life processes.

But chance could only justify positive activities of life, namely, a constant addition of pieces to a hypothetical mosaic in composition.

But life does not work like that!

Life is a continuous and persistent resistance to its surroundings, life is a negative reality. Life is conservation in its wider.

Chance so could not justify conservation if, as we have seen, means maintaining a special relationship with space-time.

Indeed, chance is an event like all others, included in a frame of reference, so time would be a parameter out of its influence.

But chance and the natural selection as well, tell us something important, the environment within which life processes acting are essential, it is a factor without which there would be no life.

We are thus forced to look elsewhere for inputs that triggers the life processes.

5) Where do we have to look for?

Life uses chance at all levels from the production of molecules until the selection of more complex organisms. But this, rather than being evidence of the fact that chance has the responsibility for the birth of life, indicates, if life has remained the same in its main features for more than 3 billion years, that chance is channeled into a precise track from which it could not move.

So chance teaches us something important: the inputs that move life processes must be founded below molecules and atoms, they must be directly involved into the atomic structure and its properties. In the atomic structure there must be something that can justify life processes and the whole conservative effort spread by them. The atomic structure obviously has to give evidence of a particular way in which life relates to space-time.

In this case we enter into a controversial field.

6)The need for a new understanding of atomic structure

We start from a clear but necessary consideration. The only time we can say we experience is the time of the theory of relativity. We do not know any other time. So, if we refer to time in the description of the atomic structure we must consider the coordinate systems.

This clarification allows us to highlight a feature of atomic structure. In the atomic structure we have two main frames of reference. One is the atomic nucleus, and the other electrons in rotation. This because in the nucleus is concentrated more than 99% of the entire mass of atom and the speed of matter subject to such confinement is close to that of light. The concept of reality that belongs to us is that of electrons in rotation with relative speed, very low, if compared to the atomic nucleus.

Our thoughts, our emotions, all chemical processes, are electronics' reality. The chemical properties of elements are produced by interaction between the nucleus and electrons.

This condition of the atom raises a first question.

Would it be possible that the relationship between two coordinate systems so far has no influence on the properties of chemical elements, and are they based only on a difference between positive and negative charges?

Answering to this question is fundamental but it is also not necessary, because an object immersed in a coordinate system reacts according to its frame of reference. Assuming that there is no coordinates exchange, as a Pythagoreans problem, the question becomes: would it be possible that two coordinate systems can be found at a given Ratio to obtain a relationship in which space and time play an effective role?

The periodic table of elements show us a first property.

The chemical properties of the elements occur periodically. Then what you see outside, the result of the relationship between the nucleus and electrons, repeats periodically.

You can also say that the frequency of the behavior of chemical elements fluctuates around something.

A second property, linked to the first, is that the state of inertia repeats periodically.

Now let's consider the helium atom. Helium is the most inert element, and shows us that nucleus and electrons are in perfect balance. Would you say that, in this case, the reference systems of the nucleus and electrons are harmonized?

We would say that the systems of coordinates produce a state of perfect equilibrium where the vector sum of the forces and torques are zero.

(We think that to consider or to not consider the systems of coordinates, inside the atomic structure, is only a methodological choice)

The structure of helium is one of the simplest, so his analysis should help us to understand if there is a balance like the one we fear.

In this atom we have two electrons that occupy the same orbital spherical. From a relativistic point of view the two electrons are identical, represent the same reference frame. According to the Pauli exclusion principle it cannot be otherwise.

Now we have: state of inertia, perfect equilibrium, two electrons that occupy the same orbital spherical.

The idea was born spontaneously: the two coordinate systems are harmonized in a ratio of 1 to 2. The meaning of this statement indicates that the length of time intervals in the nucleus is twice that of electrons in rotation. But from a relativistic point of view it is not enough because the amount of time in the system in relative motion is always higher for any fraction. We can then represent this report as follows:

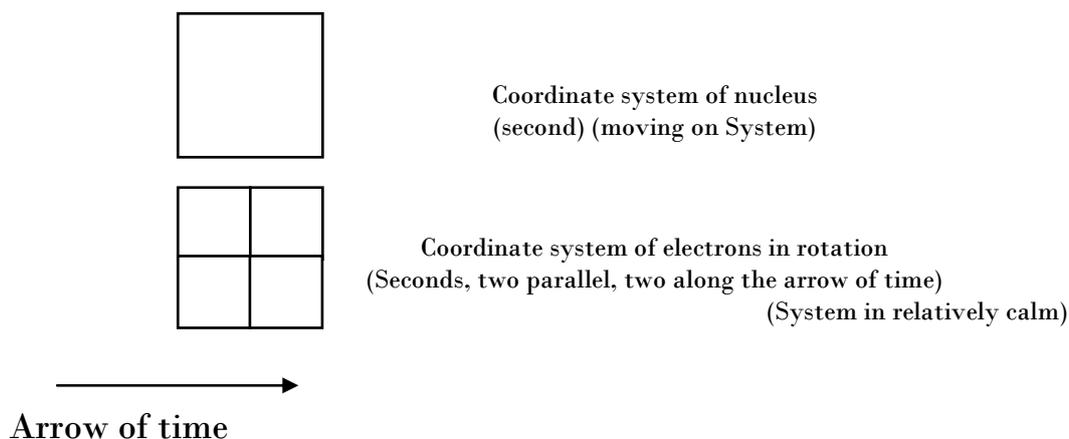


Figure 1: reference frames harmonized in the helium atom

This representation lets us understand that two coordinate systems can blend if that information, which derives from a system in relative motion, finds a match in the system in relative calm. The same thing happens when we spill the contents of a bottle of water in two glasses simultaneously: two different ways of containing water, but in the end equivalent.

We emphasize that all information is an accurate picture of the system from which it derives.

In this case we see that the events involved in electronic reality are four, two in parallel, two along the arrow of time. The balance between the two coordinate systems cannot be achieved simultaneously but with a slight delay, mediated by the movement of the two electrons moving forward in time.

(The parameter space, although in different ways, follows the same trend of the time parameter)

So we have a balance on four separate frequencies.

This, apparently, is the only theoretical possibility of balance found in the atomic structure, as in other cases, we have many atomic orbital of different size and shape.

The periodic table, however, shows us that there are other situations of balance represented by the noble gases.

But if we translate the Pauli exclusion principle in our syntax, we cannot have more than two identical coordinate systems among all the electrons in rotation. This means that the Pauli exclusion principle is the basic logic of the Ratio and that the balance between nucleus and electrons can never be more than a ratio of 1 to 2.

The problem can be solved in one way: in order to reach a new equilibrium point, electrons, taken two by two, must match as if a unique reference system is represented.

We can state, therefore, that qualities of chemical elements are determined by a fixed Ratio.

This Ratio, by which the nucleus and electrons relate, is the same for all the noble gases and represents in reality the concept of lower energy, basic logic of chemistry, but it shows something unusual: because all elements, except the noble gases, are unable to achieve a state of inertia.

The orbits in the compound become tremendously complicated and the problem of reaching the Ratio impossible, unless something new shows up

7) Life and chemistry

Where the first chemical clusters are formed, there, life begins. It seems just a nonsense, but our analysis show us that it is true.

When you proceed from individual atoms to chemical compounds the problem of reaching the Ratio seems to be unsolved because electronic orbits are more complicated and intertwined.

The definition of chemical equilibrium itself is involved by this problem and shows that chemical process proceeds at the same level as their reverse reaction. In practice it does not ever reach a state of inertia but a dynamic equilibrium.

But the problem of reaching the Ratio can be solved in an original way.

Reminding that the Ratio is represented by four frequencies, each frequency can be represented by a molecule in a molecular association. Such a compound should produce a state of inertia: but it doesn't.

The creation of a compound like the one we described, is far more significant of what the elements try to achieve.

It's here, in fact, that the magic of life starts.

The Ratio is not simply an energy balance between the parties, but something more complex.

Imagine an observer, A, who is on a system in relative motion, and has the opportunity to interact with another observer, B, who is on a system in relative calm. Suppose that A intends to build a puppet of wood as that described in the tale of Pinocchio and sends all data to B to achieve his goal. The observer B finds himself, now, in a beautiful mess, since the puppet should develop qualities really special, like occupying simultaneously a double time, and also being able to keep its integrity in the moments immediately afterwards. In practice, he should reproduce and develop conservative qualities, creating thus a mechanism where the conservative and duplicate ability, together, develop an endless process of evolution ; as in the tale of Pinocchio, the wooden puppet will be transformed into a living being.

This example will make it clear that the trend shown in all the elements to achieve the status of chemical inertia, in the gradual increase in complexity of chemical species, evolves, naturally in a trend increasingly articulated and specified where the individual components of the ratio become part of a mechanism that we call genetic code. (We recall that DNA is one of the most inert molecules of the organic world).

The Ratio is identified by four frequencies, distinct and defined, arranged in a certain way in space and time. Hence the inability to achieve a balance, through

orbital more or less complex, requires a simplification: the frequencies should be expressed separately, each one in a single molecule sequence of four letters, coupled two by two.

The creation of a code is a spontaneous point of arrival of chemistry as it is in the order of magnitude to which it belongs, that of molecules and molecular clusters, the most efficient way to meet the prerogatives of the Ratio.

This code arises because the Ratio specified by four numbers, has to be represented by individual molecules with infinite solutions and possibilities.

We are no longer, in fact, in the atomic structure, in the individual elements, but we witness endless possible combinations where random phenomena begin to feel all their weight and where four frequencies, such as ours, may evolve throughout the meaning that they carry.

The chemical compound generated by four distinct molecules, coupled two by two, and placed in sequence, is now very active because couples need to live in a regular sequence in time.

The compound will begin to react according to their prerogatives, immediately creating the conditions for an evolutionary process.

An irreversible process, in which parties strengthen continuously increasing the strength of the system.

This is not the tale of Pinocchio; this is the story of a relationship between two frames of reference perfectly calibrated each other.

This relationship shows all the basic elements involved in a vital process: because it is determined not only by the difference between positive and negative charges, but also by an outrageous energy difference between two systems that coexist in a limited space.

8)The genetic code, a natural code

At this point we should be able to interpret the genetic code and make sure that our hypothesis has a logical consistency.

We know that the genetic code is a molecule complex, namely, an organic polymer consisting of monomers, called nucleotides, made up of three parts, a deoxyribose, a phosphate group and a nitrogen. The nitrogenous bases are four: thymine, cytosine, guanine, and adenine. These bases are critical because distinguish individual nucleotides.

Usually the DNA is a double filament and is made up of two chains oriented in

opposite directions, linked by weak hydrogen bonds between nitrogen bases. The two chains united show that any sequence determines the other: each type of base on one strand forms a bond with just one type of base on the other strand. The two filaments are wrapped around each other in a double helix structure that corresponds to a minimum energy.

The replication of DNA is a complex operation. Here, the two strands are separated and then each strand's complementary DNA sequence is recreated. In these new molecules a DNA strand belongs to old molecule and the other is completely new. The four nitrogen bases can be considered as the four letters of an alphabet, and through them the synthesis of amino acids starts. Through the use of triplets, we can consider the words of this alphabet, you get 64 possible combinations that form the twenty existing amino acids, plus a STOP signal. The fact that with 64 combinations you can get only 20 amino acids means that the genetic code is a redundant code.

According to our approach, each letter corresponds to a frequency Ratio.

Let's build, then, our first table with the frequencies of the Ratio. Imagine that each frequency is given by a letter: A, B, C, D.

1) ABC ACB CBA CAB BCA BAC
2) ABD ADB DBA DAB BDA BAD
3) ADC ACD CDA CAD DAC DCA
4) BCD BDC DCB DBC CDB CBD
5) AAC ACA CAA
6) AAB ABA BAA
7) AAD ADA DAA
8) BBA BAB ABB
9) BBC BCB CBB
10) BBD BDB DBB
11) CCA CAC ACC
12) CCB CBC BCC
13) CCD CDC DCC
14) DDA DAD ADD
15) DDB DBD BDD
16) DDC DCD CDD
17) AAA
18) BBB
19) CCC
20) DDD

Fig. 2:.. Frequencies model

The order that was given is not random but takes into account that a combination in which are associated the same frequencies can always get the same "key", so the possible "tones" are 20.

The STOP signal can be easily interpreted as between the frequencies, with the same wavelength, can cause a phenomenon of destructive interference in which the frequencies can elide each other, generating a no signal.

The question of why, from 64 possible combinations we obtain only 20 amino acids, seems to be solved, but looking at a standard table, the coincidence with the representation at frequencies is not accurate.

Indeed, there are in a standard table significant shifts from our table.

We believe that the above consideration rather than weakens our approach tends to strengthen it. The provision in time and space of frequency ratio requires the molecule of DNA to produce, precisely, in space and over time a vibrational motion of opening and closing with a clear direction in order to make frequencies coupled with two by two, live in a certain way. Both in the case of replication and production of the aminoacids, reading system of dna proceed with a clear direction.

This not only further confirms our setting, but also makes us understand that the system reading has a direct influence in the correspondence between amino acids and triplets. The reading system, coding amino acids, prefers therefore, the first letter to encode a amino acid, although the last base can determine the final result.

	T	C	A	G
T	TTT Phe (F) TTC " TTA Leu (L) TTG "	TCT Ser (S) TCC " TCA " TCG "	TAT Tyr (Y) TAC TAA Ter TAG Ter	TGT Cys (C) TGC TGA Ter TGG Trp (W)
C	CTT Leu (L) CTC " CTA " CTG "	CCT Pro (P) CCC " CCA " CCG "	CAT His (H) CAC " CAA Gln (Q) CAG "	CGT Arg (R) CGC " CGA " CGG "
A	ATT Ile (I) ATC " ATA " ATG Met (M)	ACT Thr (T) ACC " ACA " ACG "	AAT Asn (N) AAC " AAA Lys (K) AAG "	AGT Ser (S) AGC " AGA Arg (R) AGG "
G	GTT Val (V) GTC " GTA " GTG "	GCT Ala (A) GCC " GCA " GCG "	GAT Asp (D) GAC " GAA Glu (E) GAG "	GGT Gly (G) GGC " GGA " GGG "

Fig. 3: Standard table.

To all this it could be disputed that there are many forms of DNA and there is also RNA, a form of nucleic acid that has even a basic nitrogen different.

The functions performed by other nucleic acids differ from the role played by DNA and this explains that the "ratio" specified in the genetic code develops through the processes of synthesis and evolutionary, further specified in a process that involves not only nucleic acids, but also amino acids and, consequently, proteins, powerful chemical machinery: the fundamental constituents of all living beings.

In proteins, that are more complex molecules of the organic world, the sequence of events described by us from atomic structure, gets all its power, since the structure-function relationship finally emerge. This, which is also a dogma of biology, is to us a necessary consequence of the Ratio found in single atom, where the parameters, spatial and temporal play a leading role.

The Ratio found in the atomic structure is shown as a valid rule not only for the chemical but also for the understanding of vital architecture and their duties.

We must watch biological processes in a new way, taking into account the large methodological progress that follows the use of reference frames in the study of chemical processes.

Chance is the environment in which the vital processes develop. There it remains, therefore, essential in any circumstance, since it depends on chance to provide from time to time the conditions for a process complicated as life, to find a suitable land in order to develop and assert itself.

The major function in all biological processes was held by the Ratio, because it clarifies the great freedom that life grants to random processes. This complicated debate shows that biological molecules must have a structure with uniformity, that characterizes and distinguishes them from other molecules.

It is therefore logical to find, in the complex network of processes, a biological succession of phenomena completely disconnected, when it seems life to consign entirely to chance own destiny. In reality, any organic molecule responds to a very specific logic which allows great flexibility and independence.

Life can not remain an epiphenomenon, exploited, therefore, by the most disparate doctrines, but, must be welded to the laws that govern the universe. Only in this way can life show all the excellence that is preserved in its essence.

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