The Relative Relativity

We are the Cosmic Universe entangled in the Universe

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Relative Relativity
wave-particle – Observer

The quantum physic has completely changed our view of the physical reality. But the quantum theory is yet incomplete. Today, the quantum mechanics is used like model, but it doesn't explain everything and doesn't satisfy everyone. In 1935, Einstein, Podolsky and Rosen challenged Bohr:

« Does the quantum mechanics explains all the physical reality? »

I propose a model which do that:

- **The physical reality is a fractal hologram**. It is the source of everything. It is and will be always the same, with fractal representations, more or less complex. The wave-particle duality.

The consequences are:

- **The universe is the complete fractal representation of the hologram.** The universe is finished.
- **The light illuminates the hologram and makes it visible.** The light is the wave–particle duality by reference.
- **The fractal anchors the hologram under the shape of stationary wave, which begins to vibrate**. The vibrations emit the 3D holographic informations, which are the expression of the physical reality.
- **The physical reality is a fractal hologram.** Expressed in the cosmic universe, which contains all representations more or less detailed, complex, of the hologram.
- **There's no beginning and no end.** Everything takes place here and now.
- **Everything is entangled, in relation**. Without the fractal, hologram would be unchanging. One doesn't exists without the other.
- **Everything is in equilibrium.** The hologram and the fractal can not be modified.
- **Everything is in movement.** The energy is put in movement by the light which anchors the wave in other points of the fractal, releasing an other expression of the physical reality.
- **All transformations are not possible**. The stationary waves emit energy at the frequency of their vibrations.
- **Everything is ordered**. The physical reality of a fractal dimension materializes itself, only if the physical reality of the lower dimensions are expressed.
- **Everything is duality.** Each point of the cosmic universe is a wave-particle duality.
- **We live in the illusion**. The visions which we have about the cosmic universe are, entangled representations of the hologram in various fractal dimensions, in the form of space-time.

The illusion comes from the fact that to life the physical reality, we must add a component, in which we are: the **Observer.** He experiments the hologram in different fractal dimensions, i.e. he observes and changes the dimensions. *But,* he is also a changing expression of the hologram in the fractal dimension he experiments, and, will experiment in the complete hologram of the universe, which is invariable and finished.

Appears the Relativity, discovers by Einstein, which we could call Relative Relativity, because:

We are the fractal hologram which we experiment, characterized by a specific physical reality, which allows some space-times changing, in the complete hologram of the finished universe.

WE CAN NOT PART OF THE COMPLETE HOLOGRAM OF UNIVERSE WHICH IS AND WILL BE ALWAYS THE SAME, WE CAN EXPERIMENT THE SPACE-TIMES OF THE FRACTAL.

When we study the cosmology, we study the infinite **SPACE** of the fractal dimension, the most complete representation of the hologram, with the universe like physical reality. We have the impression that the universe is expanding accelerated, because we are a fixed point and we observe the universe more and more clearer and detailed. The illusion of expansion is a **deeper vision**.

The physical reality is the fractal hologram in all dimensions. The hologram IS and will always be the same, thereby the universe has no beginning and no end, but a more and more deep representation at each new fractal dimension, from the elementary level, at the origin of everything, presents everywhere, to the most complete, unique because representing the whole. The illusion of **TIME** which passes, is a space-time changing, showing **the increasing and orderly complexities** of the cosmic universe.

1 The fractal holographic model

To show that the physical reality is a fractal hologram, I will prove that a fractal and a stationary wave are enough to describe the observable physical realities:

- **The fractal,** whose each party is a reduced image of the whole.
- **The stationary wave, like a rope anchored on the fractal, emits the 3D holographic informations, in a fractal dimension**. The ropes don't move. Giving always the same vibration depending of their anchoring.

By changing the fractal dimension, I observe various vibrations and different physical realities.

1.1 The fractal

The fractal bases on the fact that each part is a reduced image of the whole. If a fractal space contains X parts, we observe these X parts on the first observed level, then, it exists a sub-level with X parts less one, and so on, until the last level which contains only one fractal part inseparable.

Table 1: fractal space.

Fractal dimension	1st observed level	2nd sub-level	3rd sub-level	4th sub-level	5th sub-level
0	-				
1	1	-			
2	1	-			
	2	1	-		
3	1	-			
	2	1	-		
	3	1	-		
		2	1	-	
4	1	-			
	2	1	-		
	3	1	-		
		2	1	-	
	4	1	-		
		2	1	-	
		3	1	-	
			2	1	-

For a fractal dimension n, we observe n levels of informations and a total of $(2^n - 1)$ informations.

The mathematician Julia, who studied the fractals, has found a function to describe them: $f(z) = 2^Z + c$, where c is a complex constant. Mathematically, -1 is a complex number: i^2. **The fractal space** can be defines with the function of n:

$$f(n) = 2^n + i^2$$

He has also observed that from an initial value of z, it exists a suite of points which verifies: $z_{n+1} = z_n^2 + c$. Therefor, to study the states of the fractal between two dimensions of complexity, we have this other function:

$$f_{n+1} = (2^n + i^2)^2 + i^2$$

1.2 The stationary wave

The stationary wave, like a rope of guitar, vibrates without moving in the space because it is anchored in the fractal space or because it is the result of interference between two waves, with same frequency, traveling in opposite directions.

The vibration node and the extremities are at the origin of exchanges between the vibration antinodes.

For a same stationary wave, we can observe several frequencies of vibration, principally in fundamental mode or in the octave.

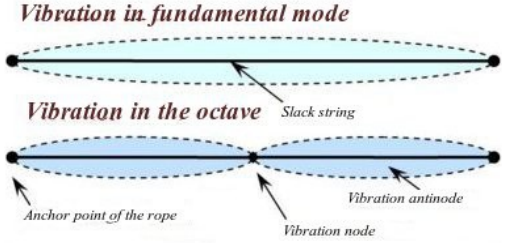


Figure 1: The main vibrations of the ropes.

2 The Physical Reality

2.1 Study of the fractal function between dimensions 0 and 1

To isolate the elementary components of the universe, I study the different states with the function f_{n+1} between the dimensions 0 and 1. *The table 1 paragraph 1.1*, shows no observable level for dimension 0, instead of one and only one exits for dimension 1. So, by studying dimension 1, from dimension 0, I observe the appearance of the fractal space: **from nothing to something**.

At the paragraph 1.1, we defined the function $f_{n+1} = (2^n + i^2)^2 + i^2$, to follow the states between two fractals dimensions. The fractal space observations, in *the table 1 paragraph 1.1*, show that a fractal dimension n contains $(2^n - 1)$ informations, so $i^2 = -1$. But must we always use $i^2 = -1$?

To answer, I test the 4 possible cases: $f_{n+1} = (2^n + i_1^2)^2 + i_2^2$

$i_1^2 = -1$:

$i_2^2 = -1$	$i_2^2 = 0$
$f(0) = (2^0 - 1) = \mathbf{0}$	$f(0) = (2^0 - 1) = \mathbf{0}$
$f(0+1) = (f(0))^2 - 1 = 0 - 1 = \mathbf{-1}$	$f(0+1) = (f(0))^2 = (0)^2 = \mathbf{0}$
$f(0+2) = (f(1))^2 - 1 = (-1)^2 - 1 = \mathbf{0}$	$f(0+2) = (f(1))^2 = (0)^2 = \mathbf{0}$

$i_1^2 = 0$:

$i_2^2 = -1$	$i_2^2 = 0$
$f(0) = (2^0) = \mathbf{1}$	$f(0) = (2^0) = \mathbf{1}$
$f(0+1) = (f(0))^2 - 1 = 1 - 1 = \mathbf{0}$	$f(0+1) = (f(0))^2 = (1)^2 = \mathbf{1}$
$f(0+2) = (f(1))^2 - 1 = (0)^2 - 1 = \mathbf{-1}$	$f(0+2) = (f(1))^2 = (1)^2 = \mathbf{1}$

We can go until the infinite, we will have only three possible results: **1, 0, -1**.

Either $i_2^2 = -1$, the intermediate states are only a sequence of 0 and -1, or $i_2^2 = 0$ we have always the same result that the initial state. It confirms that the duality is intrinsic in the universe, symbolized by two components, with a mathematic representation by 0 and -1. 0 is a real number, represents the physical reality, -1 is an imaginary number, complex, like the Schrödinger's cat, dead and alive at the same time, represents the no physical reality.

This duality also expresses itself by the fact that, if $i_2^2 = -1$, everything is in movement, sequence of 0 and -1 at each new state, and if $i_2^2 = 0$ everything is motionless, no change possible, it is an unchanging reality.

By applying this principle to the initial state, we show that if $i_1^2 = -1$, we obtain 0, neutral, the physical reality, the wave-particle duality not predictable, but real, whereas if $i_2^2 = 0$, we obtain 1, the unit, the unchanging physical representation of wave-particle duality.

The duality is the elementary component of the universe:

- Physical representation by 0 and 1, if we observe the initial state via the dimension 0,
- Sequence of 0 and -1, if we look at the changing states between the dimensions 0 and 1,
- Movement – motionless, depending of i^2 values.

2.2 The elementary components of the universe

2.2.1 The light

If we analyze $i_1^2 = 0$ and $i_2^2 = 0$, we find the elementary component of the universe which represent **the unchanging physical reality of duality, the light, with a mathematic representation by 1.** The physical reality of wave-particle duality of light has been scientifically proved.

2.2.2 The ether

The study highlights, at the same time, the unpredictable but real characteristic of -1. If $i_2^2 = -1$, we obtain the movement, the sequence of 0 and -1, real and imaginary, if $i_1^2 = -1$, we obtain the physical reality, through the 0, very real. Thereby, it exists in the universe, a state with a mathematic representation by -1, real and unreal at the same time, like the Schrödinger's cat, from where emerges the physical reality.

The question of the ether, worth knowing if there is a not empty and not visible space everywhere in the universe was often explained, but never proved, following the example of the wave-particle duality of the light before Einstein settles. We can choose to name **ether, the component with a complex mathematic representation by -1, from where emerges the physical reality, unpredictable but real, predefined**.

2.2.3 The nothingness

This confirmation raises a question: if the universe is filled with the ether, how can we justify the speed of light, the travel of photons, massless particle, in vacuum?

Coming back to the study, we find a third state which is 0. If $i_2^2 = 0$, we obtain always the initial state, which report the unchanging of what is. The universe is finished, stable, in equilibrium. If $i_1^2 = 0$, we obtain 1, the light. Scientifically proved and calculated, the light travels in vacuum with a maximal speed of 299,792,458 m/s.

Thus, we can assert that the universe is also constituted of vacuum. We can choose to name it **nothingness, with a real mathematic representation by 0, giving movement at everything.**

2.2.4 The holographic universe

From this study, we deduce that **the elementary component of the universe is the duality, and the representative components are entangled**. We can represent it under various angles:

- *The Spiritual elementary duality* is an intricacy of **the ether,** which is at the origin of the representation of the physical and not physical reality at the same time, and **the nothingness**, which propagates what is, without modification,
- *The Scientist elementary duality* is **the light**, a duality intricate wave-particle by reference. The wave propagates the energy, and the particle to visualize.

Become conscious that the Science and the Spiritual are entangled. The one has no meaning without the other. **The Universe is the 3D visualization, by the light, of informations containing in the fractal ether, entangled in the nothingness.**

2.2.5 The relations

2.2.5.1 The force

The force represents the interferences between the stationary waves. Only one single force exists. According to the anchoring points on the fractal ether, the interferences of the two waves forming the stationary wave, and the "swiftness" energy of the nothingness, the force will be more or less strong, and the scope more or less long.

2.2.5.2 The density

The density represents the vibration antinodes of the stationary waves. The availability of the space for the exchanges. In a specific fractal space, if many stationary waves are anchored, the interferences in this space will be numerous, with few movement, and few possible change. On the contrary, if few stationary waves are anchored, few interferences will be possible, then few particles, and so a weak density.

2.2.5.3 The spin

The spin represents the anchoring of the stationary wave on the fractal space. If the particle comes from the vibration in fundamental mode or in the octave, *see figure 1 paragraph 1.2,* the spin will be fractioned with a value depending of the oscillatory movement. If the particle comes from the vibration antinode, which bounds a volume, the spin will be an integer.

2.3 Validation of the theory with the observable physical reality

2.3.1 The filling of atomic orbitals

As said Einstein, in physical, it is the theory which decides that are the observable measures. **I assert that the physical reality is a fractal hologram**. I will show that this theory explains an observable reality not explained by the quantum mechanics: the filling of atomic orbitals.

For the existing data, I use information of the french magazine « les dossiers clés de la Science of the third quarter 2013 » - discover the quantum physic.

In the fractal holographic model, the atomic orbital is a fractal, and the molecular orbitals are stationary waves, anchored on the nucleus and the upper level of the fractal. The vibration node and the anchor points of the stationary wave allow some exchanges between the vibration antinodes.

The change between the two models is the atomic orbital of the electrons. Here, it is a complex fractal space, managing matter and anti-matter, instead of a space defines with a shell and a sub-shell, two quantum numbers l and m which define the orientation. The spin takes 2 values because the electrons are particles vibrating on a stationary wave in fundamental mode, oscillating around the slack string.

The number of the electron shell reports the fractal level, the entropy of the structure, more or less detailed, for atomic orbitals. He conserves the laws of the universe, a sequence of 0 and -1 depending on the observation of physical reality or not representable reality. The complex constant i^2, from fractal function, can take the value 0 or -1 according to the observable measures.

- n: the number of the shell corresponds of the fractal dimension. It is the entropy of the dimension. By increasing the dimension, we get more and more details on the filling and complexity of the data.
- When I study a n shell, I don't know if all the atomic orbitals are matter or anti-matter, I follow the logical sequence of 0 and -1. Like f(0) = 0 and f(1) = -1, I define, for n = 1, (2^n-1) shells *($i^2 = -1$)*, then for n = 2, (2^n+0) shells *($i^2 = 0$)* and so on.
- When I observe the states which take the electrons, I look for the points giving by the fractal function $f_{n+1} = (2^n + i^2)^2 + i^2$. Like the electrons are a physical reality, I take $i^2 = 0$ to follow the states, but I don't know if the electron shell is makes with matter or anti-matter, and so here I take $i^2 = -1$. That's why I have $(2^n-1)^2$ possible states for a n shell. I find the square of states highlighted by Stoner.
- The electron shell represents the physical reality, because electrons fill it, it has no subshell, so it contains at most $2*n^2$ electrons.
- To have the number of electrons, I multiply by 2, because of the spin.

Table 2: Comparison of the two models.

	Bohr – Sommerfeld Model One shell and one subshell			Fractal holographic model with fractal atomic orbital		
Number	Number of orbital levels	Number of states	Number of electrons	Number of electron shells	Number of states	Number of electrons
n	**n**	**n^2**	**$2* n^2$**	**$(2^n – 1)$ *and* (2^n)**	**$(2^n – 1)^2$**	**$2*(2^n – 1)^2$**
1	1	1	**2**	1	1	**2**
2	2	4	8	*4*	*9*	**18**
3	3	9	**18**	7	49	**98**
4	4	16	32	*16*	225	450
5	5	25	50	31	961	1 922
6	6	36	72	*64*	3 969	7 938
7	7	49	**98**	127	16 129	32 258

The fractal model, change the number of informations, so, the 3 shell gives informations for the filling of 7 electron shells and 98 electrons, instead of the present model, accepting only tow shells (one shell and one subshell) by level, needs the 7 shell to inform the same number of shells and electrons.

With a fractal space, the first three shell give informations about: 2 + 18 + 98 = 118 electrons distribute on 7 electron shells. That is the characteristic of Ununoctium, the last element of the periodic table of Mendeleev, whose atomic number is 118, and, whose is composed with 7 shells.

To analyze and report the filling of atomic orbitals, I change the level of complexity. If we look at the periodic distribution of chemical elements, we saw that, when a shell is saturated, it becomes established for the next elements, whose fill it automatically. The saturated shell don't report the action of filling, only the last electron do that. That's why, I positioned atomic numbers, on the K, L, M, N, O, P, Q shells, depending, only, on the position of the last electron, which alone, report the action of filling:

- Hydrogen, one electron on K shell, I put 1 at the position 1 – K shell,
- Helium, atomic number 2, the second electron complete the K shell, I put 2 at the position 2 – K shell,
- Lithium, atomic number 3, the K shell is saturated, this information doesn't interest me any more to report the action of filling, I put 3 at the position 1 – L shell, the position of the last electron.

And so on for the 118 elements.

Some elements are more difficult to put because the last electron is not fill linearly.

Example:

- Chrome, atomic number 24, the electrons are distributed on the energy levels 2 – 8 – 13 – 1, instead of the previous element,
- Vanadium's electron were distributed on the energy level 2 – 8 – 11 – 2,
- I put the atomic number like it will be with a linearly filling, so 24 at the position 12 – M shell, beside number 23, and I put a black arrow double sense to show the interaction with the upper shell, and the different configuration of the electrons.

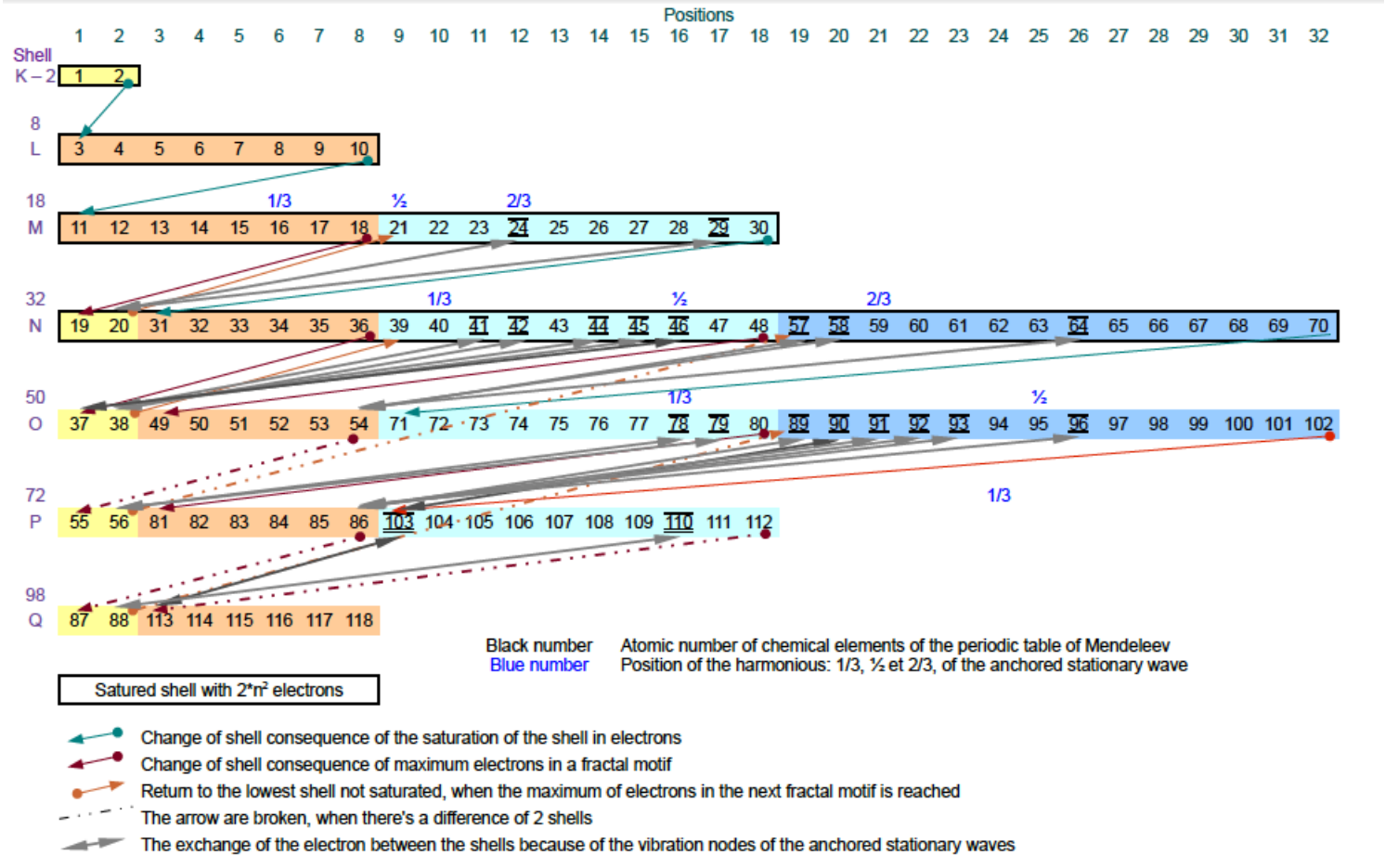


Figure 2: Distribution of the 118 chemicals elements of the periodic table of Mendeleev, according to their atomic number on the electron shells in fractal – stationary wave model.

Since the third M shell, the filling is no more linearly, but by cycle of fractal motif $2*(number)^2$. Many shells fill simultaneously, and interactions appear between the vibration node and the anchors of the molecular orbitals.

Let's study in detail the filling of the 118 chemical elements, with the *figure 2 above*:

- The K and L shells, fill linearly.

- The M shell begins to fill after the L shell, when 8 electrons are reached *(maximum electrons number in the lower level at M)*, the upper N shell begins to fill. When 2 electrons are reached *(maximum electrons number in the first level)*, the filling goes back again on the unsaturated lower M shell. M becomes saturated with 18 electrons, the filling goes on, on the N shell.

- The N shell goes back again with 3 electrons, when 8 electrons are reached *(maximum electrons number in the second level)*, the upper O shell begins to fill, when 2 electrons are reached *(maximum electrons number in the first level)*, the filling goes back again on the unsaturated lower N shell. N reaches then 18 electrons *(maximum electrons number in the third level)*, the upper O shell goes back again to fill. When 8 electrons are reached *(maximum electrons number in the second level)*, the upper P shell begins to fill. When 2 electrons are reached *(maximum electrons number in the first level)*, the filling goes back again on the unsaturated lower N shell (two lower levels). N becomes saturated with 32 electrons, the filling goes on, on the O shell.

- The O shell goes back again with 9 electrons, when 18 electrons are reached *(maximum electrons number in the third level)*, the upper P shell goes back again to fill. When 8 electrons are reached *(maximum electrons number in the second level)*, the upper Q shell begins to fill. When 2 electrons are reached *(maximum electrons number in the first level)*, the filling goes back again on the unsaturated lower O shell (two lower levels). O reaches then 32 electrons *(maximum electrons number in the fourth level)*, the upper P shell goes back to fill. When 18 electrons are reached *(maximum electrons number in the third level)*, the filling goes back again on the upper Q shell. Q reaches then 8 electrons *(maximum electrons number in the second level)* and we are at the last know element in the periodic table of Mendeleev.

The number of the electron shell represents the fractal dimension of atomic orbital. For a fractal dimension n, we observe n information's levels about the filling:

- n = 1, we obtain one information's level: the linearly filling of the electrons.

- n = 2, we obtain two information's levels: always the linearly filling of the electrons, but in the scale of the whole electron shell, many shells are filling together with a fractal motif. This is true since level n+1, therefor the third M shell.

- n = 3, we obtain three information's levels: always the linearly filling of the electrons, the filling simultaneous of many shells with an increasing fractal motif, and the apparition of interactions between the shells. The electrons should be on a specific shell and they go on an other, because the molecular orbitals are stationary waves with interferences, which, in the physical reality give a different configuration. The interference creates some exchanges between the atomic orbitals, at the level of the vibration nodes, to acquire the stability. This is true for the positions upper at the second dimension, therefore the element with more than $2*(2^2-1)^2 = 18$ electrons, i.e the $19^{ème}$ electron.

We find the principle of the fractal, each part is a picture all whole. The property of the smaller dimensions are acquired for the greater dimensions. The greater dimensions are a complexity, one vision more clear and detailed. But the implementation of the greater dimensions requires, beforehand, the realization of smaller dimensions. Everything is cyclic, ordered.

The filling of atomic orbitals, like any physical reality, follows the fractal development as and when the chemical elements become more complex. Like the light, it answers to the wave-particle duality, via a fractal atomic orbital and a molecular orbital under the shape of a stationary wave. Nothing is random.

The split between the pioneers of the quantum physic comes from the saving of the determinism. It was necessary to consider a certain property hidden inside the atom or inside the electron, to plan the direction taken after the collision. Born decided that a such property did not exist. **The ether, elementary component of the universe, is the heart of the reality. It is at the origin of what will be, and, it is hidden within the fractal part of the atom.**

2.3.2 Within the matter

2.3.2.1 Neutrons, protons, electrons

I continue the visit within the matter, with elementary particles: neutron, proton and electron. **The neutrons and protons are constituted of 3 quarks, while the electron is indivisible.**

In the elementary fractal space, which I represent by 0-1, the stationary wave vibrate in fundamental mode and in the octave. The vibration in fundamental mode exists by itself, it needs nothing else. The vibration in the octave is an infinitesimal complexity of the vibration in fundamental mode, needing a stabilization.

The waves, before anchoring, vibrate in their rhythm. Somewhere, the waves with the same frequency, are in the maximum of their vibration and other at the minimum. Since three waves, this phase shift creates a volume, and a stabilization will give a particle. That's why three quarks are useful to make the neutrons and the protons, and, why, in the filling of the electrons, the interactions begin at the third dimension.

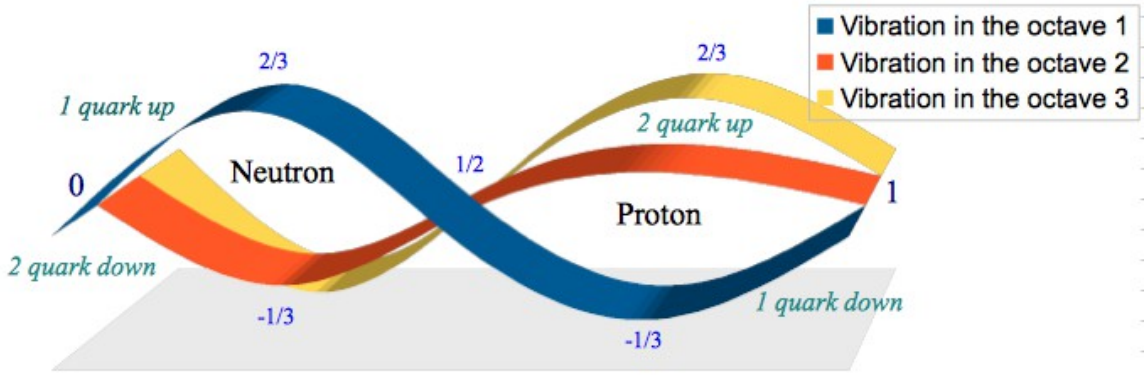


Figure 3: Vibration in the octave of the holographic wave between elementary fractal space.

The quarks have a charge of -1/3 and 2/3 because the vibration antinode are at 1/3 and 2/3 of the elementary space. The value is negative when the vibration is underneath the slack string. Here, it is always for -1/3, perhaps because of the fact we have two waves traveling in opposite directions.

Electron, quark, neutron and proton have spin ½ because they result of the vibration of the stationary wave.

Everything is duality entangled and complexity. If we look at the fractal spaces 0-1, we see, *figure 4*:

- The neutrons and protons are the particles, and the quarks the waves vibrating in the octave. The vibration at the octave needing interactions, so three waves to get a volume. In the fractal space 0-1, the stationary wave makes two vibration antinodes, giving two distinct and complementary particles.
- The nucleus forms the particle, the electron forms the wave in fundamental vibration, with 2 spins.

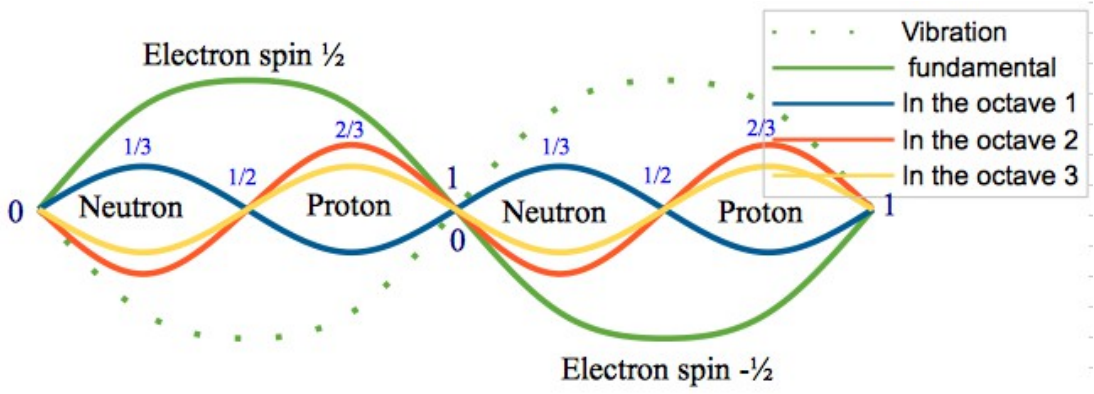


Figure 4: Schematic representation of two nuclei and two electrons.

Everything is in equilibrium in the universe. Everything is representable with 0, 1, -1. In the fractal space 0-1, neutron and proton form the nucleus, the particle's duality, they represent the matter with a charge of 0 for the neutron and 1 for the proton *(sum of the charge of the quarks)*. The electron forms the wave's duality, indivisible, stems from the fundamental vibration, with an interference property. The interferences with the stationary waves of the other elements, i.e between the molecular orbital, more or less long, create links more or less strong between the elements, and produce new elements. Like the ether, with value -1, **the electron is an elementary particle at the origin of the unforeseeable chemistry, via the interferences between the elements. Its charge is -1.**

2.3.2.2 The Big Bang

The continuation of the travel takes us toward another complexity, the Big Bang. I use information of the french magazine « les dossiers Science », december 2013 - the Big Bang, the origins of the universe, page 6-9 « Mysterious big bang »:

« The big bang is not a starting point but a story which tells how an original world,
where our notions of time, space, and matter don't exist,
became our tangible and temporal universe from a series of primitive events. »

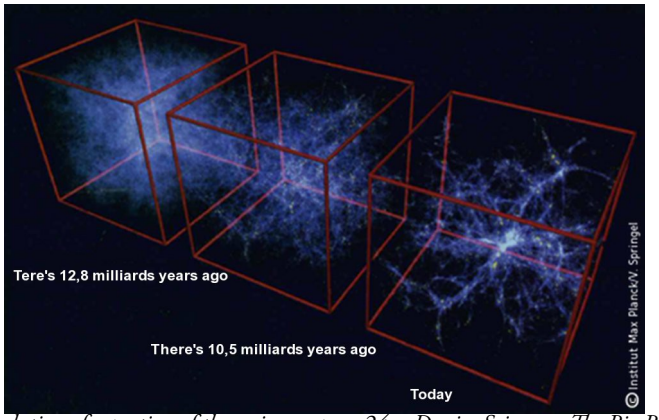
2.3.2.2.1 The universe

« First at all was the discover of general relativity by Albert Einstein and his idea that the universe is homogeneous and without privileged direction: it means that in small scale, the structure of the cosmos is the same whatever the direction in which we look. »

In agreement with an intricacy intrinsic in the universe, of the ether with a fractal form which accommodates the hologram for more or less detailed representations, and the nothingness which propagates without modification.

- *« We owe another theoretical advance made at the same time by the Russian Alexandre Friedmann then by the Belgian Georges Lemaître. They found some solutions at the general relativity involving an expanding universe instead of Einstein who had imagined a static world, that was doubtless the biggest mistake of his career. »*

The physical reality of the universe, like complete expression of the hologram, is in concordance with a static universe. The expansion is a more clear and detailed view of the hologram. For proof, this is a picture of the evolution of a portion of the universe extracts from the same magazine. If I am not mistaken, we will have exactly the same views, if we improve the clearness of a picture of the portion of the universe. Einstein was right.



The evolution of a portion of the universe, page 24, « Dossier Science – The Big Bang »

- *« As unbelievable as it may appear, the space doesn't preexist before the Big Bang: thus this one can not be devised like a gush of matter since a particular place of the space but as the simultaneous appearance of the space in all the universe. »*

This reminds the study of the fractal function between the dimensions 0 and 1 in *paragraph 2.1*, the passage of no observable level to one and only one fractal level. From « *the space doesn't preexist before the Big Ban* » to « *the simultaneous appearance of the space in all the universe* ». We pass from an universe without space to an universe where the space is everywhere. The space is the expression of the elementary fractal of the complete hologram. The "Planck era" is the physical reality of the passage from nothing to something. Before there is no hologram, then the hologram is.

- *« Because, if the universe is in expansion, it involves inevitably that it was a time when it was much more concentrated and much hotter. By consequence, in this universe not static, it is possible to take backward time and go back up towards the origins of the cosmos. »*

The fractal holographic model, certificates that the universe is an hologram. It is not in expansion, it is static, and time doesn't exist. Everything takes place here and now. It is possible to see the physical reality of the hologram under various, more or less complex and original, angles.

The impression of go back in time, it is the possibility to see that is present on every point of the universe, see the most smallest elementary fractal element at the origin of everything, present in everything.

2.3.2.2.2 The Big Bang nucleosynthesis

- *« We are always at the very beginning of the very first second of the big bang. The fluctuation strictly speaking is already finished because it lasted only a thousandth hundred billionths of billionth of billionth of second but the cosmos continue to dilate. »*

After the passage from dimension 0 to 1, the complete hologram expresses itself in the form of the elementary fractal physical reality, **the space : the first dimension**.

- *« At that time, the universe is similar to an ardent porridge of elementary particles of matter and anti-matter: quarks and antiquarks, electrons and antielectrons (named positrons), neutrinos and antineutrinos. »*

At the paragraph 2.3.2.1, we saw that the electrons and the quarks, are stationary waves anchored which vibrate in fundamental mode or in the octave. I think the neutrinos are waves not anchored. They form the cosmic radiation which propagates in the space, free of anchoring. After the fractal elementary particle, it is the apparition of the wave which propagates without interaction, in fundamental vibration or in the octave, anchored or not. The two elementary components of the universe's duality, either the wave and the space, are present. **The equilibrium wave - space creates various vibrations, according to the fractal motif: the second dimension**.

Everything is in equilibrium, at the matter corresponds the anti-matter. In this document, I don't study the particles of anti-matter because I observe the physical reality, the matter side.

- *« Thousandth hundred seconds after the beginning of the big bang, the nuclear force requires the quarks to gather by three to form, according to combinations, the protons (which have an electric charge opposed to the electron's charge) or the neutrons (which, as their name indicate, are electrically neutral), which constitute thereafter the nuclei of atoms. »*

The next step is the wave's interaction by three, through the phase shift, which allows the first complex particles: the neutrons and the protons which compose the nuclei, *see paragraph 2.3.2.1.* We find also this interaction in the study of the electrons filling, *at the paragraph 2.3.1*. **The interaction of stationary waves creates complex particles: the third dimension**.

- *« The big bang nucleosynthesis is makes step by step and begins hence in a modest way with the constitution of the deuterium nucleus, one isotope (i.e one variant) of hydrogen whose nucleus contains a neutron more than the initial proton. »*

The deuterium looks like the *figure 3 paragraph 2.3.2.1*, i.e the anchoring of three stationary waves vibrating in the octave, which, through the phase shift, creates two heavy spaces complementary: one neutron and one proton.

- *« The process of nucleosynthesis continues logically: the deuterium's nuclei aggregate finally a second neutron to give an other isotope of the hydrogen named tritium. »*

Although the stationary waves are anchored in the fractal space, they stay waves propagating in the nothingness and anchor themselves in the next fractal space. If we refer at the *figure 4 paragraph 2.3.2.1,* we see that the waves propagation, creates following the fractal space 0-1, a new fractal space, which begins with a neutron.

- *« When the tritium merges with a second proton, the big bang produces at least an other element that hydrogen: this nucleus with two protons and two neutrons is the helium, the second element the most plentiful in the universe. »*

In the same *figure 4 paragraph 2.3.2.1*, we see that the wave propagation, after the neutron, creates a proton. A second nucleus appears, on which, the wave in fundamental mode, creates a second electron.

We find the duality, the cycles, the ordered complexity, observed in the filling of the atomic orbitals.

***The particularity of the hydrogen which has no neutron*:**

At paragraph 1.2, we learn that the stationary wave is the result of interferences between two waves traveling in opposite directions. Like the hydrogen has no neutron, we can imagine the stationary wave anchored in 1, on the side of the proton, and not anchored in 0, and thus, see the hydrogen like the physical reality of the expression of the wave traveling from 1 to 0. While, the other elements are the expression of the waves traveling from 0 to 1. The complementary and the simplicity makes that hydrogen is the key element of the chemical reactions.

The hydrogen is for the wave traveling from 1 to 0, that, the light is for the wave traveling from 0 to 1:

The wave-particle duality par reference.

2.3.3 The light spectrum

Max Planck pointed out the fact that oscillatory vibrations of the light couldn't take any values.

The light, propagates without disturbance in the nothingness and vibrates on the ether. The wave can vibrate only on the fractal particles of the ether, generating predefined frequencies.

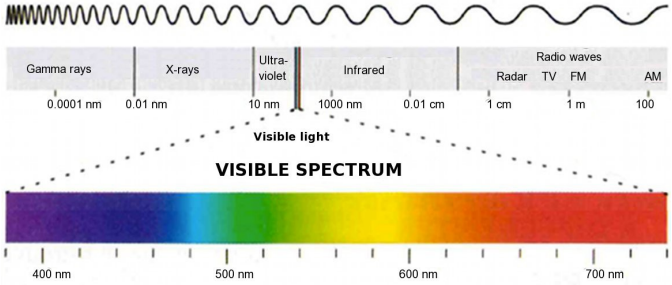


Figure 6: Schematic representation of the light spectrum, page 12 « dossier Science on quantum physic ».

For proof, the gamma rays: the radiance stems for the annihilation of a pair of electron-positron. *The paragraph 2.3.2.1*, shows that the electrons vibrate on the fractal spaces 0-1, a weak wavelength characteristic of the gamma rays. The annihilation is the lost of the anchoring. The gamma rays are also free to propagate in all the directions, on the fractal particles distant of 0-1, under the shape of a wave in fundamental mode.

The radio waves, propagate very fast, because they vibrate on very distant fractal particles of the ether.

We saw that the apparition of the neutrons and protons, vibrating in the octave, requires an interaction of three waves. Bigger is the distance between two fractal particles of the ether, more waves will be needed to stabilize the space under the shape of particles. This explains why the star with a red color, have a lower mass than the stars with a blue color. The distance between two fractal particles is greater, requiring more waves to create some particles which will increase the mass.

The short wavelengths vibrate on fractal spaces of small dimension, the elementary fractal part at the origin of everything. The long wavelengths vibrate on fractal spaces of large dimension, one more complete representation of the hologram, with an individual character.

The light spectrum represents the possibility of vibrations, free of anchoring, on the fractal particles with predefined distances, which could be, perhaps 0-1, 0-5, 0-100..., creating different fractal spaces, at the origin of various particles, with similar characteristics, according to the wave-particle duality, the vibration in functional mode or in the octave, and, some different characteristics according to the size of this space.

2.3.4 Few other elementary particles

I take two examples from the book « les chasseurs de particules » from Yaval Ne'eman and Yoram Kirsch:

- *p95 « The muon is very similar to the electron and can be consider as an electron « having too much fat ». His mass is 105,7 MeV (207 times more than the mass of the electron). »*

Like the electron, the muon could be considered like a wave vibrating in fundamental mode, on a fractal space with distance greater than 0-1. *Some additional studies are necessary to calculate this space.*

- *p92 « The pions form a triplet: one positive particle (π^+), one negative (π^-), one neutral (π^0)... The three pions have spin zero. »*

Everything is duality. It exists a triplet of proton, electron, neutron, having spin ½ which represents the wave's duality, and, the gluon has spin 1, represents the volume of the vibration antinodes of the neutrons and the protons, the particle's duality.

We could envisage the pions like a fractal space X with three particles which take the three values of the universe 0, 1, -1, and represent the particle's duality because they have spin 0. *Like for the muon, more studies are useful to discover the particle(s) which represent(s) the wave's duality in equilibrium.*

The light, wave-particle duality by reference, which answers at this equilibrium with electromagnetic waves like wave's duality, and, the photon has spin 1 like the particle's duality.

Once upon a time, the Higgs boson, the elementary fractal particle of the ether, having spin 0, because not yet affected by the wave. It is present at each point of the universe, waiting to be lit, or detect.

2.4 The space-time

Each point of the universe belongs to a fractal motif of the hologram, more or less complex. I tried to make a schematic representation on *the figure 5 below*.

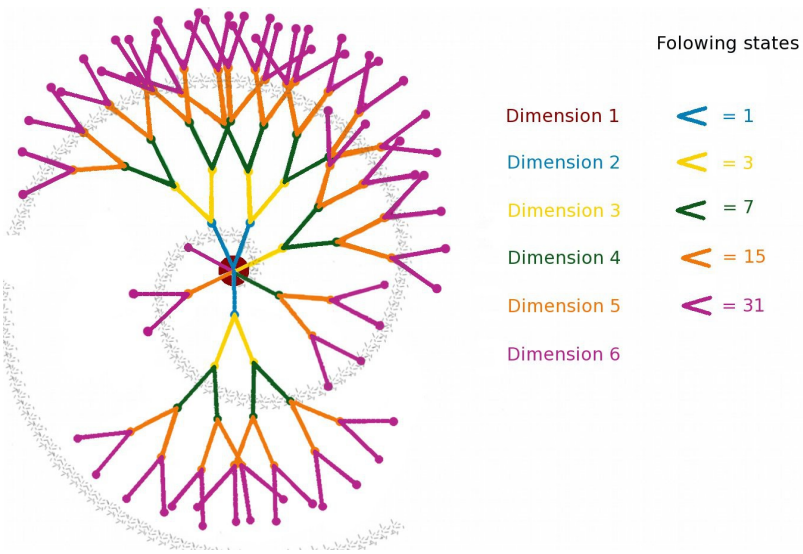


Figure 5: Representation of the fractal ether.

We have a fractal, each part is a picture all whole.

The elementary component is the duality, I represent, in the dimension 1, by a point, then by a dash, which will have as value $(2^n - 1)$ *(n is the dimension).*

At each new dimension, the dash is duplicated, to mean the duality, and find the square of possible values to pass from one dimension to an other.

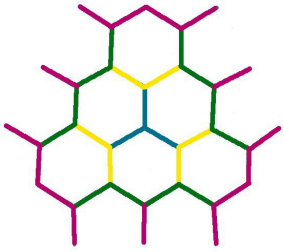
Finally, the addition, since the origin, of a dash, to report the new dimension as such.

The schematic representation explains the spiral form of the galaxies or of the nebula. To show it, here are two pictures from the Nasa which are accessible on their website: http://www.nasa.gov/.

©Nasa, The spiral galaxy NGC 7424, « picture of day: january 8th 2013 ».

©Nasa, nebula M57 from the Lyra constellation, « picture of day: september 16th 2012 ».

With an equiangular representation, nous obtain the structure of the hive.



Equiangular representation of the fractal ether.

Each point of the universe is the vacuum, allowing the light, wave-particle duality elementary, speeds at 299,792,458 m/s, with any obstacle, to illuminate the fractal elements. It is difficult to represent it with schema, but the constant c « celerity », make it to perfection.

The two are intrinsically linked. The space-time are 3D mark of the hologram:

- **The space is the sharpness,**
- **The time is the deeper.**
- **The time-space, the complexity of the hologram, is the physical reality in a specific dimension.**

By changing the dimension, we change the sharpness and the deeper of the hologram, we observe an other physical reality. **By changing the space-time, we travel in space and in time.**

2.5 The relative relativity

So far, nothing contradicts the model, but, if the Universe is a fractal hologram.

We are the hologram of the cosmic universe in a fractal dimension. We can not part of the complete hologram of the universe which is and will be always the same, static and finished.

We can experiment it, changing the space-time and the physical reality, but creates nothing outside the hologram, and, its duality: Wave - Particle, Space – Time, Ether – Nothingness, Matter – Anti-matter:

The Relative Relativity.

The space-times are the dimensions of the holographic's expression. In a space-time of a specific dimension, the hologram emits the corresponding 3D informations.

We can say: the universe is entangled between the ether, which contains all the possibilities, and the nothingness which propagates what is. Or, the light illuminates the space whose the elementary fractal particle, the Higgs boson makes vibrate the hologram. Or, God decides to do the experience of himself, he hide his conscience within the heart of the atoms, universal component. The choose of the words is an holographic experience. It is relative.

« God does not play dice », said Einstein in response to Born, who, confirmed that the quantum random is intrinsic and not according to a misunderstanding. For me, the probabilistic vision of the world comes from the ignorance that we are a point of the universe who observes the universe in which he is. Like the man in the train used by Einstein. All is a question of **Observer who, here, can not leave the train « Universe »**.

So, in what dimension are we?

If we look different scientist domains, we see that:

- The most plentiful elements in our galaxy are: **73.9%** hydrogen, **24%** helium, **2.1%** other,
- The cosmos: **72.6%** black energy, probably the greatest mystery because we ignore its nature, instead of attract the matter, it pushes it away, it behaves as would make a repulsive force of gravity, **22.8%** dark matter which neither emits nor absorbs light or other electromagnetic radiation, **4.6%** matter,
- The DNA: **75%** uses for the regulation, **20%** inactive, **5%** encodes for the genes.

The universe contains only three elements which take a value of 1, 0, -1. Everything is duality, in equilibrium, and entangled. If we look at the universe through various domains like chemical, cosmology, biology, we always find a representation of three components which, independently of the domain, have the same proportions:

- **-1 ≈ 75%**, ***The anti-reality,*** it comes into contact with the physical reality to offer a new possibility. Like the hydrogen in the chemical reactions and the combustion of the stars. The elements of gene regulation which modify the coding. It browses the fractal in the opposite direction of the physical reality. The wave propagates from the complete representation of the hologram to the elementary, the opposite of the wave representing the matter. The hydrogen has no neutron, the dark energy is like an repulsive force of gravity. **What we can imagine: the invisible in action, the relation, the Art. It's the expression of the wave traveling on the fractal from the dimension infinite to the dimension 0.**
- **1 ≈ 5%**, ***The physical reality*** in which we are: the chemical elements, the matter, the coding. **What we can see: the reality, the matter, the knowledge, the observer, the Science. It's the expression of the wave traveling on the fractal from the dimension 0 to the dimension infinite.**
- **0 ≈ 20%**, ***The possibility***: the helium, at a specific moment, in the core of the stars, will create the matter. For the dark matter which emits no electromagnetic radiation and the inactive DNA, I think the auto-healing is an expression and they can do more, like the cleanup of the earth and the space, the development of the free energy of Tesla, the return of the rain in Africa, the growth again of an amputed member. It is beyond our knowledge and requires researches. **What we can experiment: unknown in waiting, the idea, the Creativity. It is the equilibrium between the two waves, waiting to go on one side or in the other side.**

In summary, the physical reality would be the stationary wave which results of the interference between the wave from 0 to the infinite, and the wave from the infinite to 0. It can vibrate only on the fractal particles of the space, which confers to it some predefined frequencies, and will express the hologram in form of space-time. If the fractal expression of the wave from 0 to the infinite is majority, we are in the visible, the matter, else in the invisible, the anti-matter. All changes are not possible because everything is entangled, ordered. A wave – fractal in equilibrium.

If we consider an universe of 100 dimensions: we would be between the third and fifth dimension, being able to experiment the 20 next dimensions according to the « anti-reality » informations of the 75 dimensions most complete.