Stealthy orbitals hypothesis
quantum gates and singularities

Jean-Yves Boulay

Abstract.

The graphic charting of atomic orbitals into the form of chevrons suggests the existence of stealth orbitals occupying the quantum vacant space of the various electronic shells. It is proposed here, the hypothesis that these quantum gates allow transit of electrons from orbital to another, and that these gates can be accesses to quantum singularities without space-time. Singular arithmetic arrangements in the distribution of real and stealthy orbitals of certain genetic code components reinforces the hypothesis to existence of these quantum gates.

1. Introduction

The quantum study of the genetic code [1] has was an opportunity to propose a new type of table describing the quantum organization of atoms. We was demonstrate in a complementary paper [2] , after having compared it to a classical illustration, that this new concept of chart, using an innovative representation of quantum shells arranged in the form of chevrons is more explicit in the study of chemical elements and molecular chemical structures. Finally, this graphic representation allows to introduce the hypothesis of the existence of stealth orbitals which are as quantum gates opening towards singularities.

2. Recall about chevron form quantum chart versus linear quantum chart

In the scientific quantum literature, many tables already exist describing the quantum structure of matter. Very often, these tables are represented in the same general linear form to describe the distribution of orbitals and electrons on the different quantum shells of chemical elements.

In contrast, study of atomic orbitals and the concept of stealth orbitals is more easily understood in an innovative representation of quantum shells arranged into the form of chevrons. So we have to introduce this new graphic representation of atomic orbitals here.

2.1 Classical linear quantum chart

In Figure 1 is illustrated a classical quantum table of linear form of the first three shells and the first six quantum subshells. This type of table is conventionally used in quantum scientific literature. In this linear form chart, the relationship between the shell number and the orbital amount is not clear. Visually, by shell, we need to add each orbital line to understand that their sum is equal to the square power of the shell number.

- 1st shell $\rightarrow$ 1 orbital = 1^2 = 1 orbital,
   - 2nd shell $\rightarrow$ 1 + 3 orbitals = 2^2 = 4 orbitals,
      - 3rd shell $\rightarrow$ 1 + 3 + 5 orbitals = 3^2 = 9 orbitals.

shells and subshells		orbitals and electrons				
		by shells		by subshells		
1(K) $n=1$	1s $l=0$	1	2	1	2	●● $m=0$
2(L) $n=2$	2s $l=0$	4	8	1	2	●● $m=0$
	2p $l=1$			3	6	●● $m=-1$ ●● $m=0$ ●● $m=+1$
3(M) $n=3$	3s $l=0$	9	18	1	2	●● $m=0$
	3p $l=1$			3	6	●● $m=-1$ ●● $m=0$ ●● $m=+1$
	3d $l=2$			5	10	●● $m=-2$ ●● $m=-1$ ●● $m=0$ ●● $m=+1$ ●● $m=+2$

Fig. 1 Classical quantum chart.

Note: Here, it is the quantum number $m\ell$ which is subject of study. For graphic simplification, this value is simply noted m in demonstrations.

2.2 New chevron form quantum charts

In Figure 2 is illustrated the new concept of quantum chart in chevron form. Inside this table, the different quantum shells and subshells are so presented in the form of chevrons.

New chevron form quantum chart

Fig. 2 New chevron form quantum chart

At the top end of each rafter are indicated the names of the different shells and subsells; at the left end of these chevrons, the numbers of orbitals and electrons of these different shells and quantum subshells are indicated. At each chevron vertex is the orbital where the quantum number $m = 0$. The orbitals with positive quantum number m are progressively positioned towards the top of these chevron vertices and the orbitals with negative quantum number m are progressively positioned towards the outside left of these chevron vertices.

This new graphic design is more explicit in describing the quantum structure of chemical elements than any other usual linear chart. Very visually, as illustrated Figure 3, this chevron configuration clearly highlights the arithmetic progression of the orbital numbers of the different quantum shells in square powers of the level of these electronic shells.

- 1st shell → $1^2 = 1$ orbital,

- 2rd shell → $2^2 = 4$ orbitals,

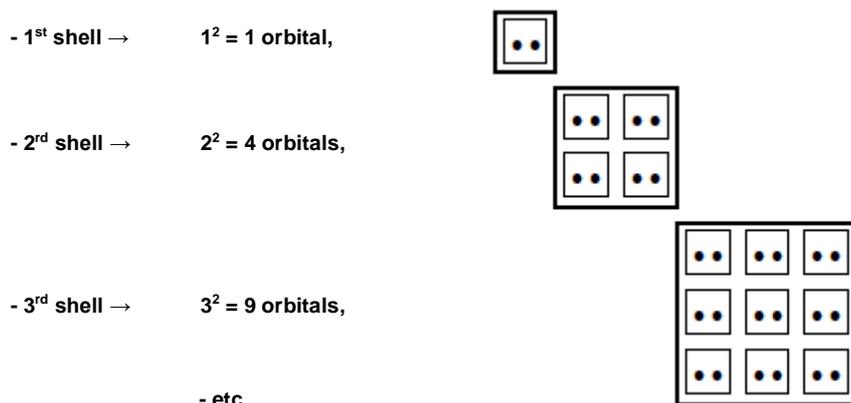- 3rd shell → $3^2 = 9$ orbitals,

- etc.

Fig. 3 Square geometric correspondences between shell quantum number and number of orbitals.

2.3 Classical versus chevron form quantum chart

Figure 2 can would be without from comment. Compared to the classic version, the chevron form version of the quantum chart brings a vision as in relief of quantum shells. In this new graphical version, for each quantum shell, the orbitals appear as a compact square block whose dimension is directly proportional to the shell number (square power).

Also, orbitals with the same magnetic quantum number (m) are arranged on the same diagonals. All of this is instantly visible in this chevron-shaped version, unlike the linear classic version.

3 Quantum charts into chevron form

3.1 General chevron form quantum charts

Figure 4 shows the chevron form quantum table of the first 15 electronic shells. This graphic concept is extensive development of that introduced in Chapter 2.1 and illustrated in Figure 2. We suggest that this new graphic type be favoured for the description of the quantum organization of the different chemical elements.

Fig. 4 General chevron form quantum chart representing the first 5 shells and first 15 quantum subshells of the chemical elements. Distribution of orbitals and electrons in these shells and subshells.
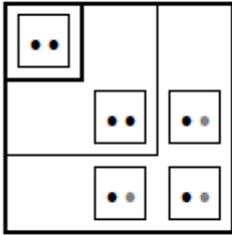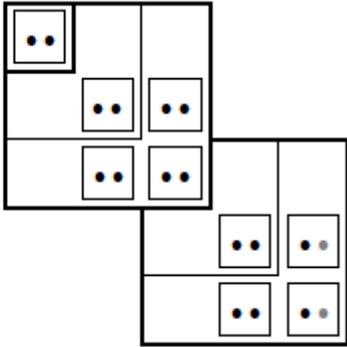
3.2 Atoms quantum charts

Fig. 5 Graphical quantum representation of Nitrogen and Sulphur in chevron form design (in their saturated state). See also Fig. 2 and Fig. 4.

In this new quantum chart concept, and more generally in the quantum study of the chemical elements, the electronic spin is so not detailed (by ascending or descending arrows). In return, it is the migratory or non-migratory nature of the electrons which is highlighted. Thus, for example, representation of the nitrogen atom and sulphur atom such as that illustrated below (Figure 4) is favoured.

With this new quantum chart design, the relative dimension of quantum shells and subshells is also more explicitly perceptible than in a line graph (such as the one presented in Figure 2).

In Figure 6 is illustrated, in the new chevron form chart concept, the quantum structure of the first ten chemical elements. This type of table gives simultaneously, visually, a lot of quantum but also physical information, in particular a good idea of the electronic wingspan of the different chemical elements which are represented.
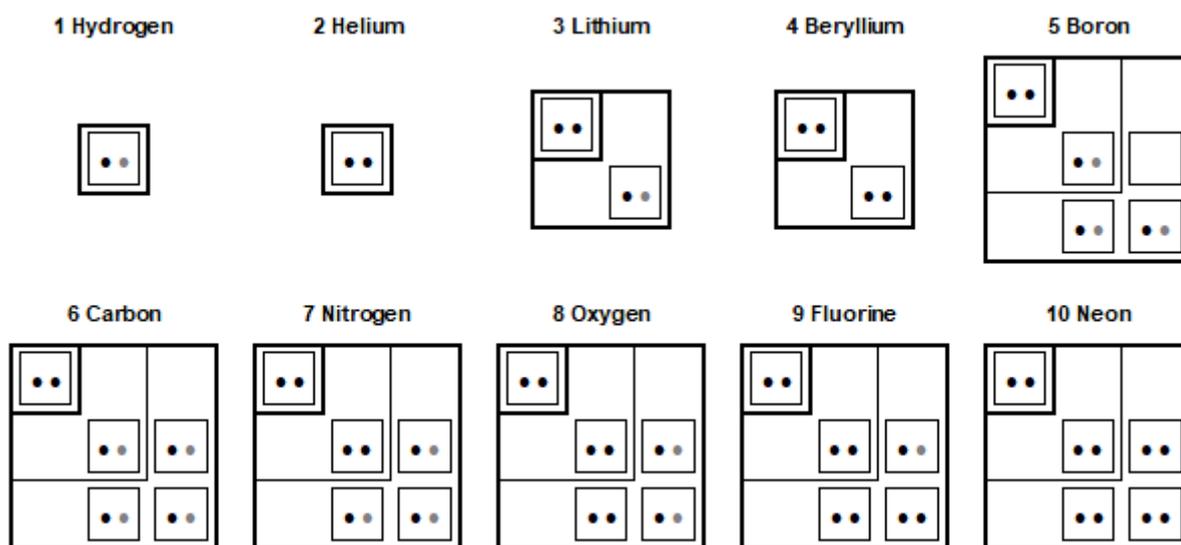
Fig. 6 Graphical quantum representation of the first ten atomic elements in chevron form design (in their saturated state). See also Fig. 2 and Fig. 4.

3.3 Molecules quantum charts

From the atoms quantum charts in chevron form (see Figures 5 and 6), then we propose a representation of molecules under the aspect of that presented in Figure 7 with Glycine molecule as example.

Quantum structure chart of Glycine
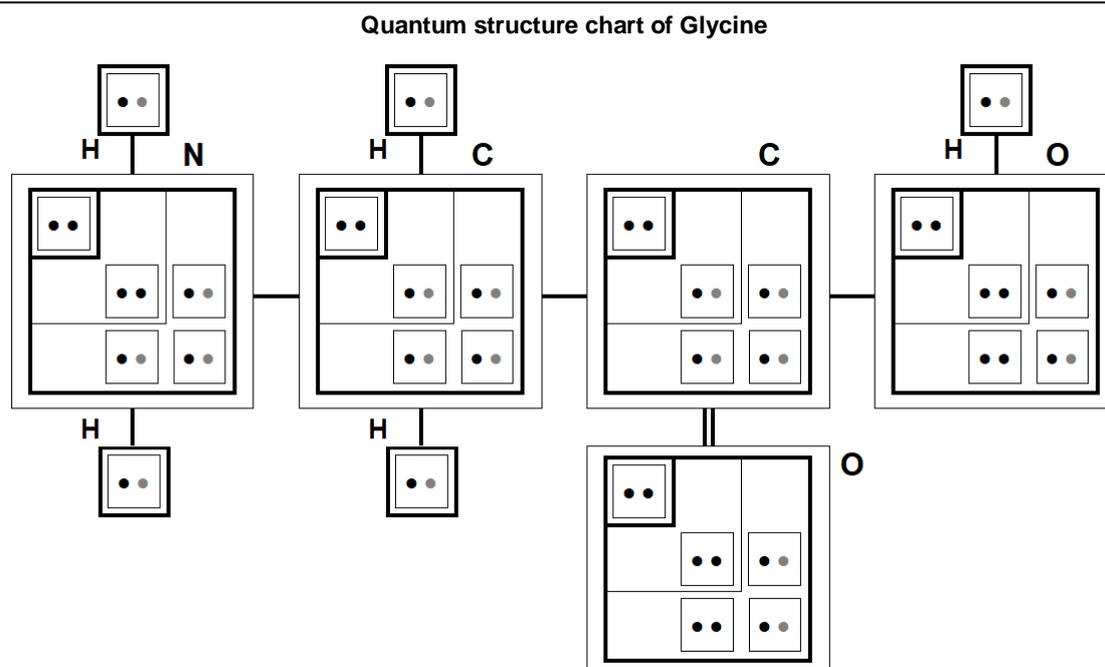
15 shells - 20 subshells - 30 orbitals - 60 electrons whose: **40 own electrons** 20 guest electrons

Fig. 7 Quantum structure of Glycine in a chevron form quantum chart. Own electrons (•) and guest electrons (◦). See Fig. 6.

As will be demonstrated later, choice of this molecule is opportune for the development of the stealthy orbitals hypothesis. This does not represent molecular orbitals but describes the source orbitals of each atom. Again, the chevron-shaped representation of quantum shells, subshells, orbitals and electrons distributed over them appears clearer than a linear or circular representation of atoms.

4 Stealthy orbitals hypothesis

This new graphic chevron-shaped representation of the quantum organization of electronic shells is the opportunity to propose the hypothesis of the existence of stealthy orbitals. In fact, we believe that this graphic distribution of atomic orbitals under the aspect of chevrons is not only figurative but can, under a certain quantum point of view, approach physical reality.

4.1 Stealthy orbitals concept introduction

We therefore propose the existence of two additional stealth orbitals on each end of the quantum subshells, this excepted for the very first subshell *1s*. In Figure 8 are highlighting these stealthy orbitals in the chevron form quantum chart of the first three shells and the first six subshells.

Fig. 8 Highlighting of stealthy orbitals in the chevron form quantum chart in the first three shells and the first six subshells. See Fig.2 to comparison.

Thus, these stealthy orbitals fill the graphically vacant space which, as we intuitively suggest, represents some quantum reality.

Figure 9 illustrates this stealthy orbitals concept for chemical elements Nitrogen and Sulphur as example.
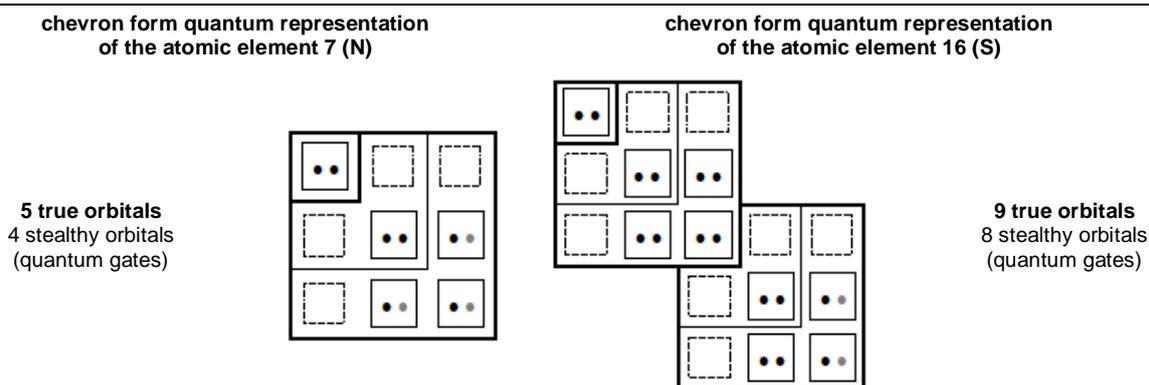

Fig. 9 Graphical quantum representation of Nitrogen and Sulphur in chevron form design (in their saturated state) with highlights of stealthy orbitals. Own electrons (●) and guest electrons (◉). See Fig. 5 and Fig. 8 also.

These stealthy orbitals can be considered as quantum gates where pass electrons changing orbital and subshell, especially in their interatomic migrations. Although these "quantum gates" graphically (in square shaped) fill the chevrons so as to close the quantum shells, they are not affected by the different quantum numbers applied to the electrons. Any of these gates can be therefore taken by any single electron within a shell.

Beyond and through these quantum gates, the electrons pass through a singularity without classical spacetime and are therefore projected instantly from an orbital to another (outside or inside atoms).

4.2 Stealthy orbitals concept depiction

Into Figure 10 amino acid Glycine is depicted in its zwitterionic state. This doubly ionized state is a good way to illustrate the different possible configurations of stealth orbitals supposed to operate in the quantum subshells of atoms.
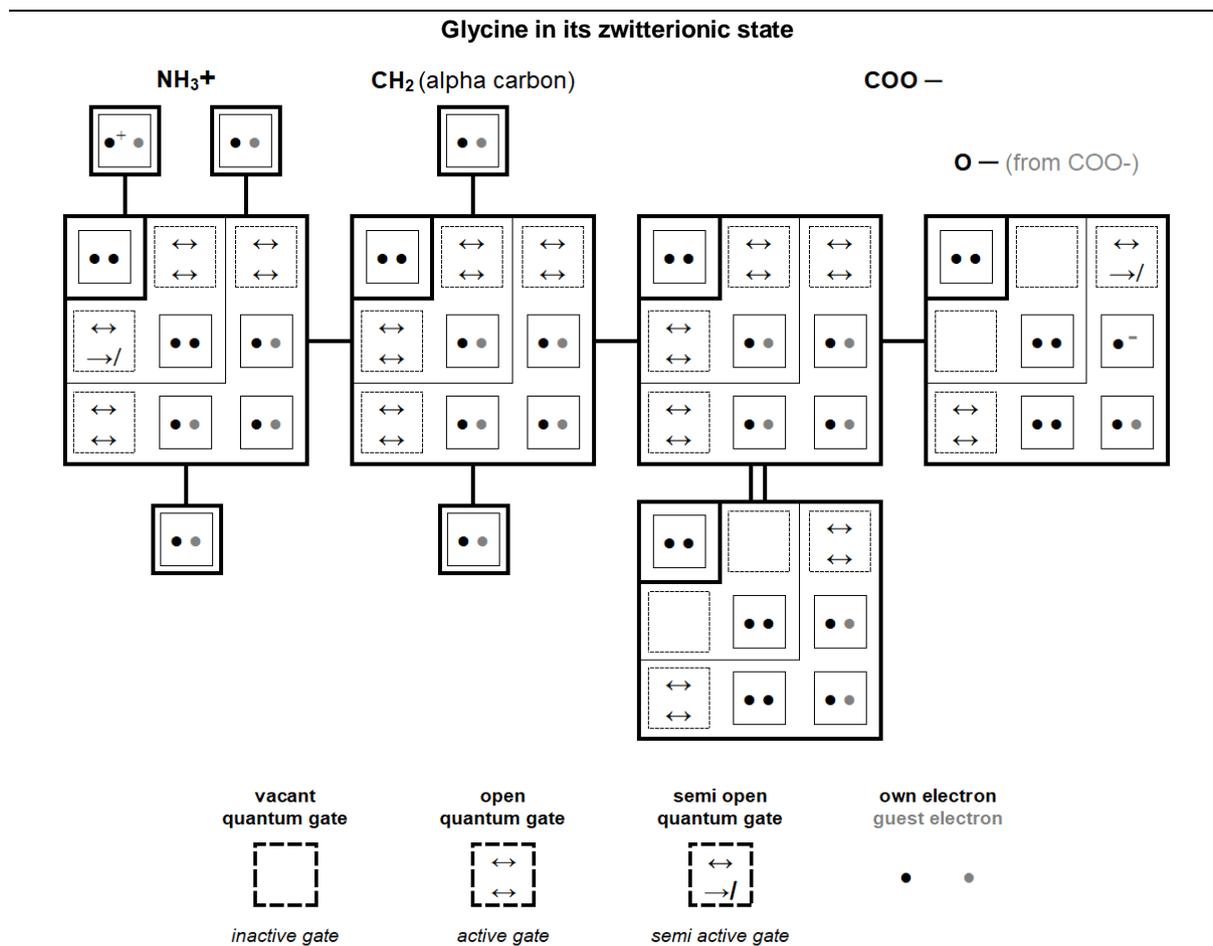
Fig. 10 Graphical quantum representation of chemical groups NH_3+, CH_2 (alpha carbon) and O- (from COO-) of amino acid Glycine in its zwitterionic state. Own electrons (●) and guest electrons (●). See Fig. 7 also.

Thus, quantum gates can be into three possible states:

conventional proposed representation

- inactive gate	→	vacant quantum gate
- active gate	→	open quantum gate
- semi active gate	→	semi open quantum gate
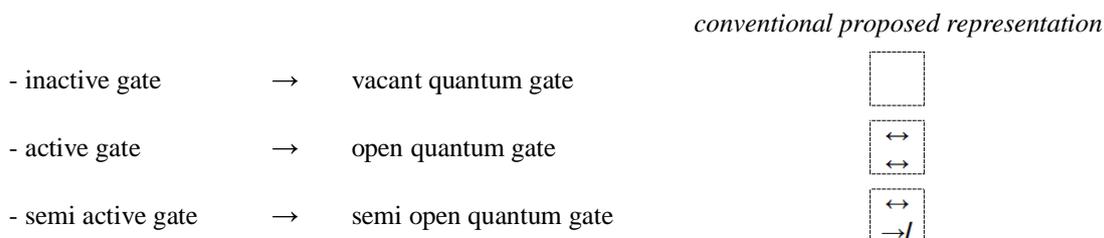
4.3 Stealthy orbitals and singularities

The stealth orbital hypothesis also requires we to propose the existence of singularities where electrons temporarily transit. The latter term is actually not really appropriate since we suggest that in these singularities there is neither time nor space. We therefore call them "singularities without spacetime". These singularities are therefore a virtual place (without space) where electrons pass when they operate in covalent bond. Figures 11 and 12 will now illustrate the quantum mechanism of these virtual entities.

4.3.1 Classical functioning of singularities

As illustrated Figure 11, when two orbitals are in possible interaction, so stealthy orbitals activate and a singularity appears. In this new stealthy orbitals hypothesis, we suggest that the first orbital *1s* is simultaneously also as a quantum gate (stealth orbital) but only when this orbital does is by only one electron, so in fact only for the hydrogen atom.
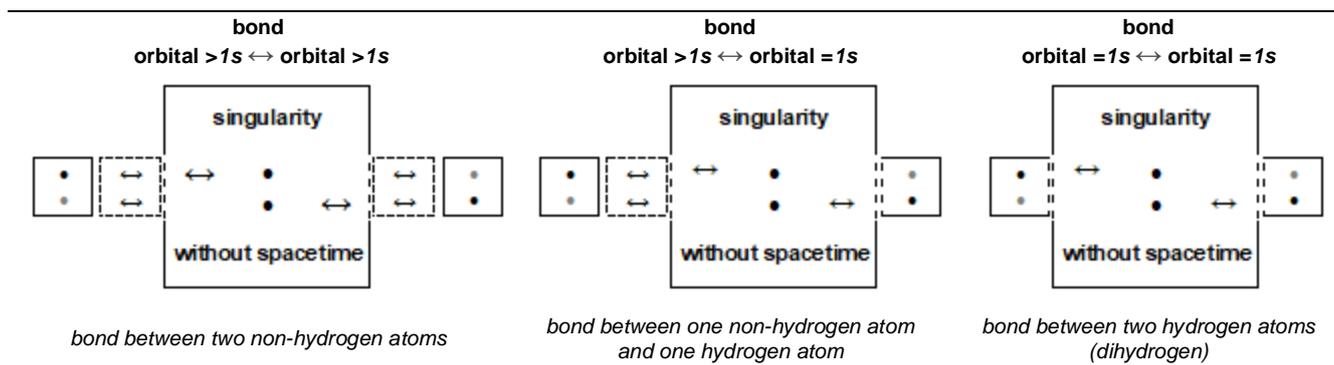
Fig. 11 Graphical quantum depiction of three classical covalent bonds using gates and quantum singularity. Own electrons (●) and guest electrons (◉). See Fig. 10 also.

4.3.2 Functioning of singularities in ionised configurations

Figure 12 illustrates the interactions between orbitals of the Hydrogen in excess and of Nitrogen in the positively ionized NH_3+ group and what happens to the celibate orbital of Oxygen in the negatively ionized COO- group of the zwitterionic Glycine introduced in Figure 10 and used as an very explicit example.
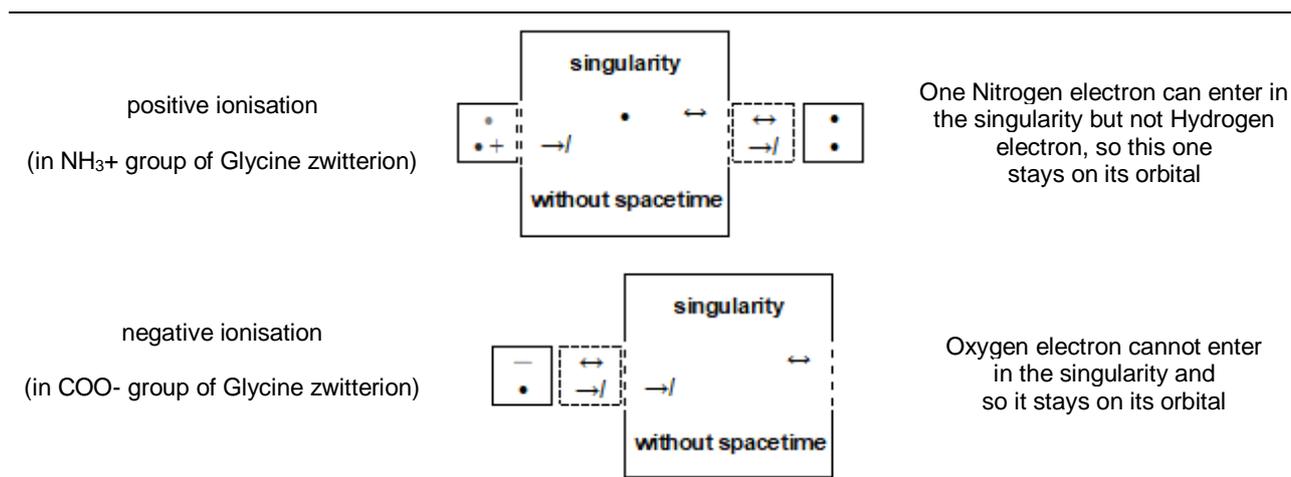
Fig. 12 Graphical quantum depiction of two ionised configurations using gates and quantum singularity in NH_3+ group and COO- group of zwitterionic Glycine. See Fig. 10 also. Own electrons (●) and guest electrons (◉).

In positive ionisation, an electron (●+) from Hydrogen atom (thus orbiting on a gate-orbital*) can generate a singularity towards a quantum gate (of a non-hydrogen atom, in the example: Nitrogen). But this one, not being connected to any orbital, stays on its orbital. Nevertheless, a non-binding bond is possible between the two atoms because an electron of Nitrogen atom (from a full orbital) can cross the singularity to join and share the celibate orbital of Hydrogen atom.

In negative ionisation, a celibate electron (●-) from the third Oxygen subshell activates a gate and a singularity. But this gate remains semi closed (so, as far as, semi open) and the electron cannot penetrate or cross the singularity because there is not another activated gate (stealth orbital) due to the absence of a Hydrogen atom where it can migrate. So this electron stays on its orbital and none bond is created. However, the non-filling of the orbital in Oxygen, leave open a passage in the singularity and in the quantum gate which therefore remains semi open.

*Recall: it is agreed that, in Hydrogen atom, the first orbital *1s* is simultaneously also as a quantum gate (stealth orbital).

4.4 Functioning of singularities

Some way, one can say that various configurations illustrated in Figures 11 and 12 are as molecular orbitals. So, from the stealth orbitals hypothesis, a molecular orbital is structured like this:

$$orbital \leftrightarrow quantum\ gate \leftrightarrow singularity \leftrightarrow quantum\ gate \leftrightarrow orbital$$

As the light wave is an emanation of the photon, the singularity is an emanation of the celibate electron. Also It is this singularity, emanation of a electron, that activates the gates between celibate electrons. but these quantum gates are not emanations of electrons, they are in a vacuity state purely.

5 Stealthy orbitals and chevron form quantum chart

The hypothesis of stealth orbitals allows us to offer a more quantum chart trimmed and still in chevron form.

5.1 Chevron form quantum chart including stealth orbitals

Figure 13 represents a chevron form quantum chart similar to that previously introduced in Figure 4 Chapter 3.1. However, this one is enriched with stealthy orbitals (so quantum gates) proposed in hypothesis introduced Chapter 4.

Fig. 13 Full general chevron form quantum chart representing the first 5 shells and first 15 quantum subshells of the chemical elements. Distribution of orbitals, stealthy orbitals (quantum gates) and electrons in these shells and subshells.

In this table, all the different quantum shells and subshells are graphically closed in square shaped polygons. We propose idea that this charting can approach the real physico-quantum configuration of the electronic clouds surrounding atomic nuclei and this, although we perceive them in three dimensions.

This hypothesis is part of the general quantum literature already used and which often uses geometric analogies in description of subatomic phenomena.

5.2 Figurative chevron form quantum chart

In a graphic optimization of the new concept of a quantum chart in chevron form, a concept integrating the hypothesis of the existence of stealth orbitals, we finally propose a figurative representation of the physico-quantum organization of the electronic shells of the different chemical elements.

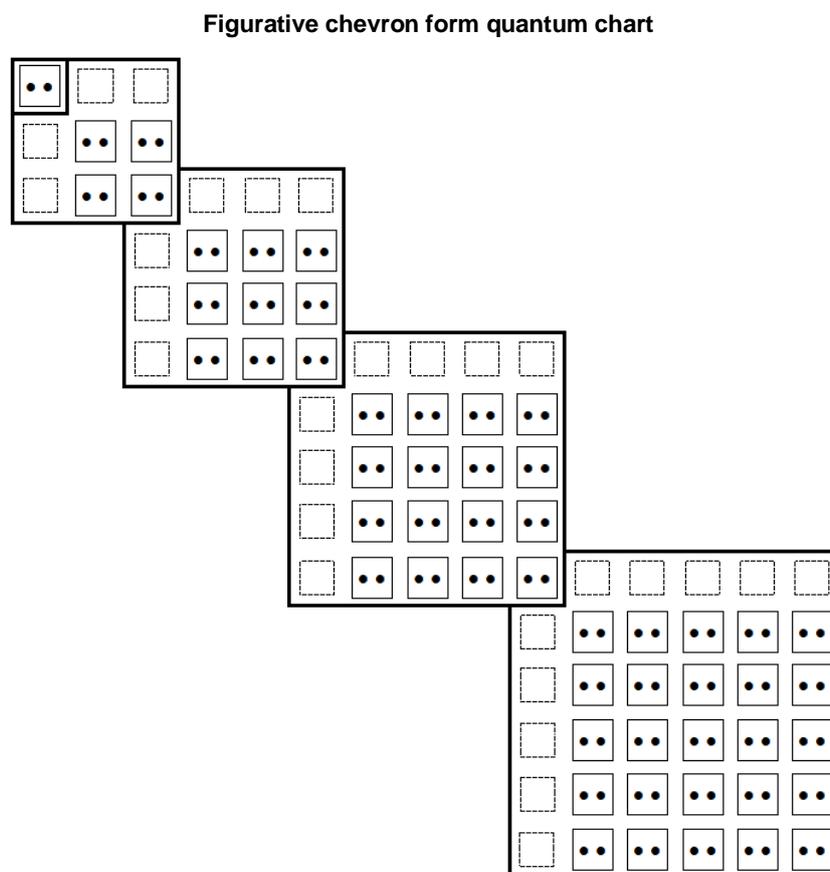**Figurative chevron form quantum chart**

Fig. 14 In a figurative shape, general chevron form quantum chart representing the first 5 shells and first 15 quantum subshells of the chemical elements. This, as an abstract of chart in Fig.13.

This intuitive figuration illustrated in Figure 14 opens the debate of new quantum theories towards an idea of a two-dimensional structure of the clouds of electrons surrounding the atomic nuclei. However, in order not to confuse the so already complex notions introduced here, this will not be developed in this paper.

6 Orbitals, stealthy orbitals, genetic code and the 3/2 ratio

The stealth orbital hypothesis is reinforced by the permanence of an arithmetic phenomenon previously revealed in the article "Genetic code, quantum physics and the 3/2 ratio" [1]. In this paper, we have shown that the chemical elements entering into the composition of the different components of the genetic code (amino acids, DNA) are opposed in various ratios of 3/2 value according to multiple criteria.

In overlay of this, the distribution of stealth orbitals in these genetic components also organizes in various arithmetic ratios of 3/2 value.

6.1 The five chemicals elements of the genetic code

Only five atoms make up the twenty genetically encoded amino acids ((proteinogenic amino acids). These five different atoms distribute their electrons over one, two and three quantum shells. According to these physico-chemical criteria, mapping Figure 15, these five atoms are opposed in two groups in a duality of three versus two atoms: Carbon, Nitrogen and Oxygen are with even number of quantum shells; Hydrogen and Sulphur have an odd number of quantum shells. Still in a 3/2 ratio duality, the three atoms with an even number of electron shells total six shells (2 + 2 + 2 = 6 shells) versus four (1 + 3 = 4 shells) for the two atoms with odd number of quantum shells.

3 atoms to **even number** of electron quantum shells			← **3/2 ratio** →	**2 atoms** to **odd number** of electron quantum shells

Carbon **Nitrogen** **Oxygen** **Hydrogen** **Sulphur***

2 shells   **2** shells   **2** shells   **1** shell   **3** shells

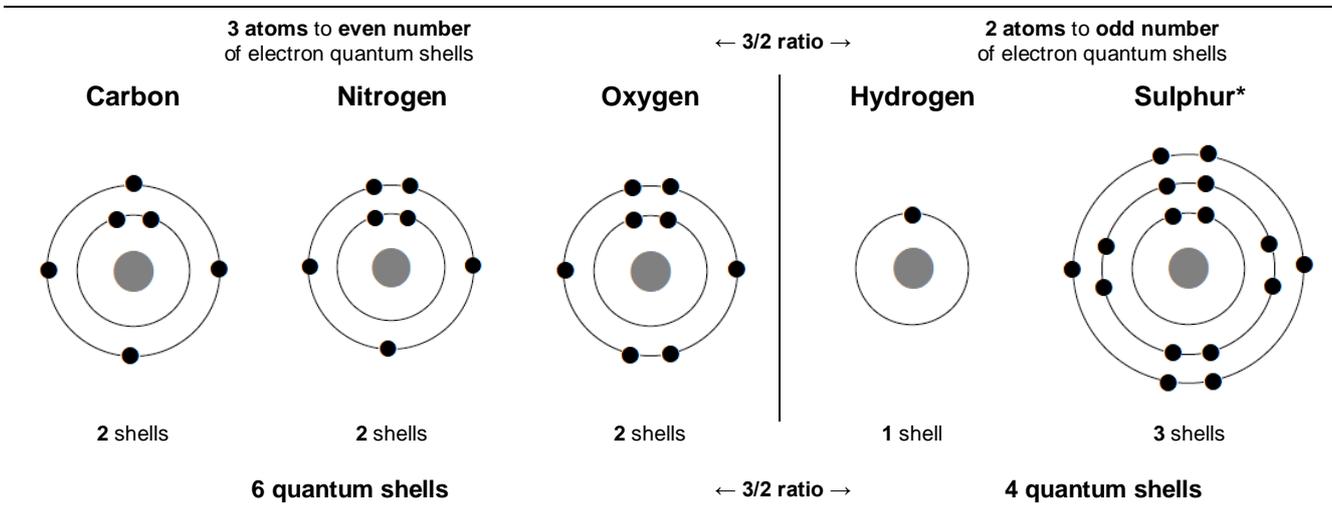**6 quantum shells** ← **3/2 ratio** → **4 quantum shells**

Fig. 15 Differentiation of the 5 atoms constituting 20 amino acids into 2 groups of 3 and 2 atoms according to the parity of their number of electron quantum shells. * In DNA, Phosphorus replaces Sulphur. Primordial to see Fig. 20 also.

DNA is also made up of the same five different qualities of atoms except that Phosphorus replaces Sulphur. However, these last two atoms have the same number of electron shells and the same electronic structure in their saturated state (inside molecules) with the same maximum number of electrons that can orbit their nucleus. So Phosphorus and Sulphur having the same saturated quantum configuration, these two elements can be confused in following demonstrations.

Figure 16 illustrates the quantum structure of the five atoms working in the genetic code. Thus it appears that, both "true" orbitals and "stealth" orbitals (quantum gates) are organized in ratios of 3/2 value in the opposition of the three chemical elements with an even number of quantum shells (C, N and O) to the other two with an odd number of shells (H and S or P for DNA).
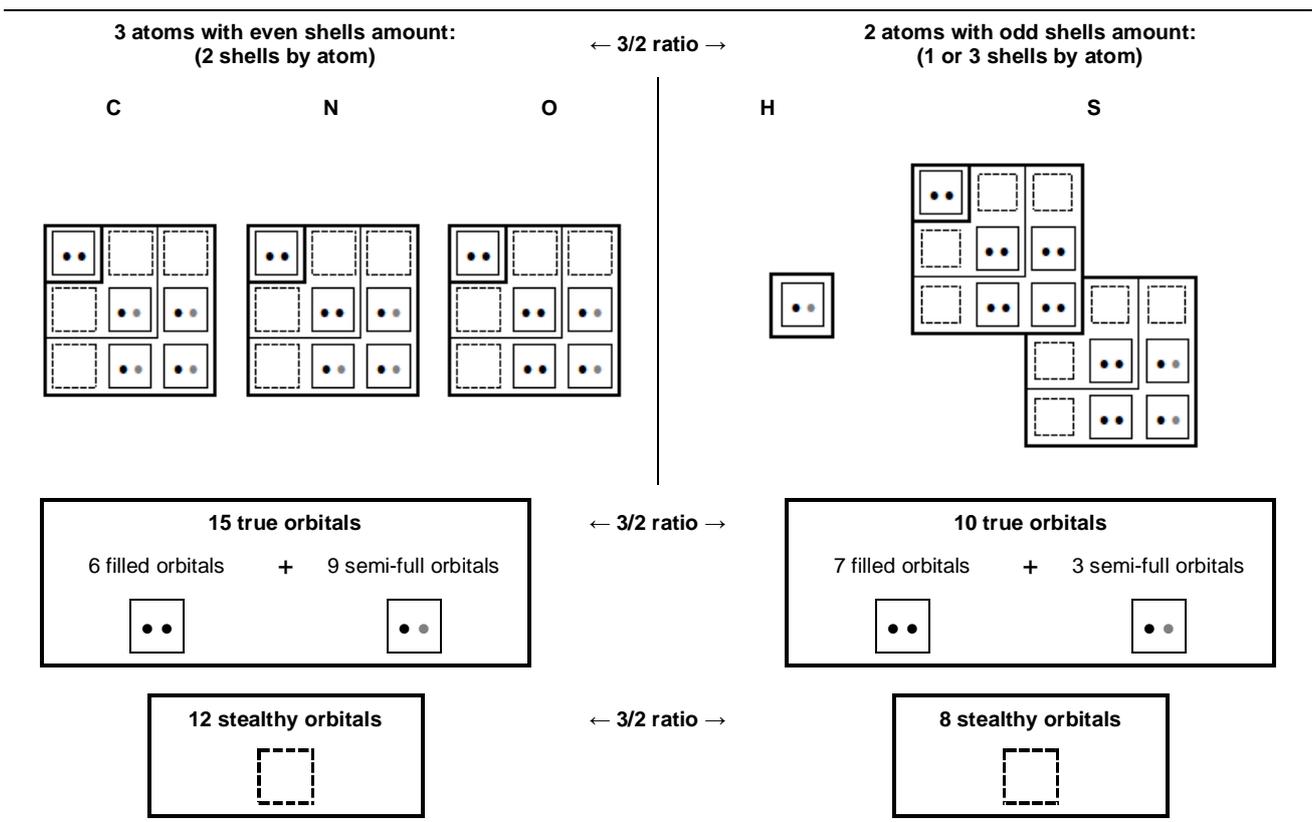

Fig. 16 Quantum structure depiction of the five chemical elements constituting 20 amino acids of genetic code. Arithmetic opposition in 3/2 ratio of true orbitals and stealth orbitals according to the parity of number of electron quantum shells of these elements (In DNA, Phosphorus replaces Sulphur). Primordial to see Fig. 20 also.

In a previous article [1] studying these same components of the genetic code, we revealed a very large number of opposition of the values of the different quantum entities in always this same 3/2 ratio. These observations presented in the appendix (illustrated in Figure 20) so strongly support the hypothesis of stealthy orbitals. We strongly advise to consult these unusual but essential observations about genetic code atomic components.

6.2 Glycine and Methionine quantum structure

Into amino acid Glycine, the smallest proteinogenic peptide and into Methionine, the amino acid initiator of peptide chains, true and stealth orbitals (quantum gates) are distributed in singular arithmetic arrangements. These physico-quantum configurations reinforce the likelihood of the existence of these stealth orbitals. Next depictions of these two amino acid will made in isolated molecular state.

6.2.1 Glycine quantum structure

Among the twenty amino acids, Glycine is distinguished by its absence of radical. Its radical is reduced to a simple hydrogen atom which in a way simply closes the base structure common to each amino acid. So Glycine can be considered as a base, more precisely as glycined base. Quantum study of it reveals singular arithmetic arrangements of its true and stealth orbitals (quantum gates).

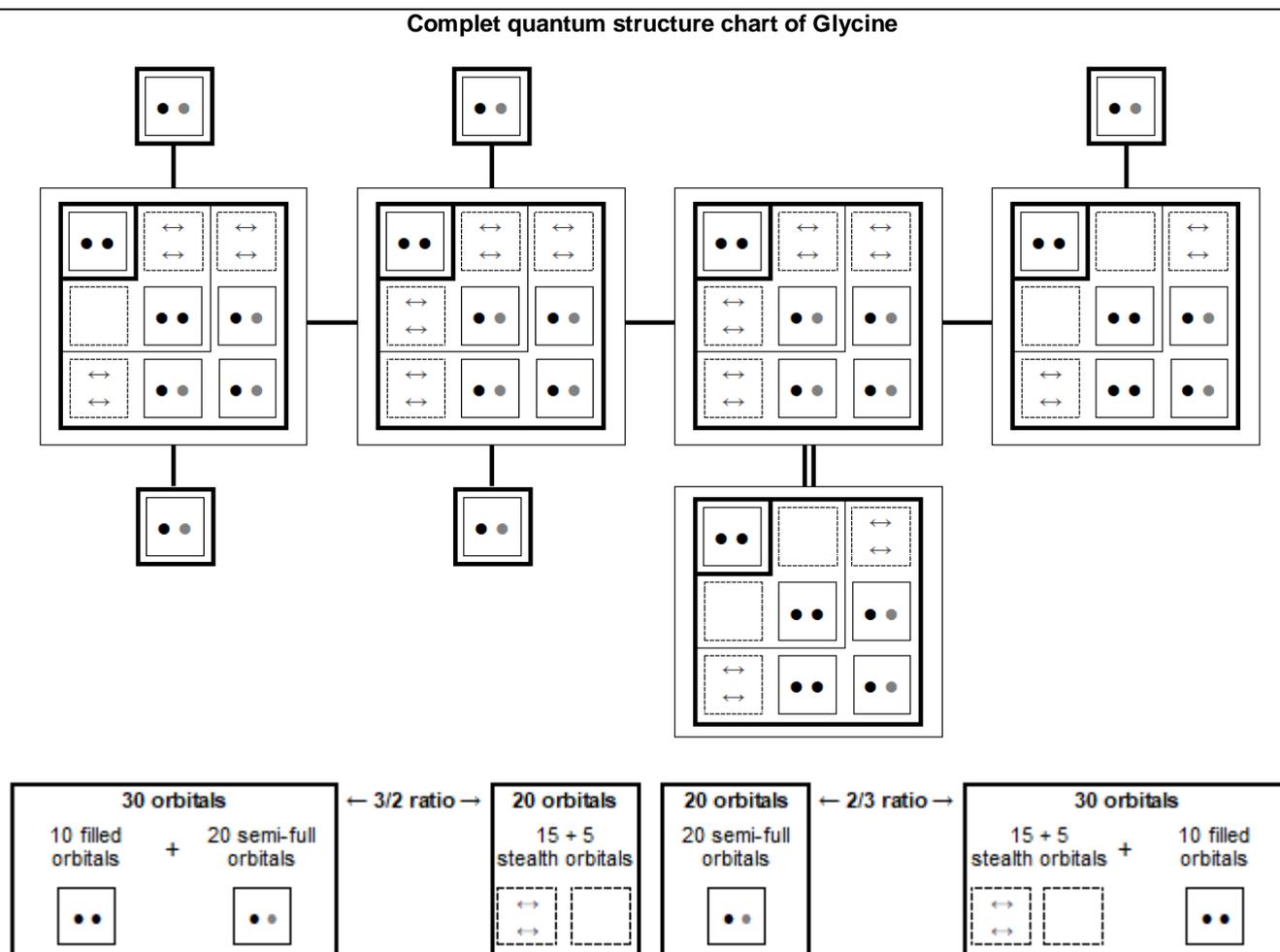**Complet quantum structure chart of Glycine**

Fig. 17 Quantum structure of Glycine in a chevron form quantum chart: 30 true orbitals whose 10 filled orbitals and 20 semi-full orbitals, 20 stealthy orbitals. 40 own electrons (•) and 20 guest electrons (◦).

The illustration of the detailed quantum structure of Glycine (in isolated molecular state) therefore reveals that number of true orbitals and that of stealthy orbitals are in a ratio of value 3/2. In transcendence to this, another arithmetic phenomenon is revealed. It is also that the total number of stealth orbitals and filled orbitals is equal to 3/2 that of semi-full orbitals (those of covalence).

6.2.2 Methionine quantum structure

It turns out that Methionine, the amino acid initiator of all peptide chains working in living matter, has exactly double the number of entities as Glycine, previously studied.

Figure 18, the illustration of the detailed quantum structure of Methionine (in isolated molecular state) therefore reveals that number of true orbitals and that of stealthy orbitals are, as in glycined base, in a ratio of value 3/2. Again, in transcendence to this, another arithmetic phenomenon is revealed. It is also that the total number of stealth orbitals and filled orbitals is equal to 3/2 that of semi-full orbitals (those of covalence).

Unlike Glycine, Methionine has a larger atom: Sulphur. The detailed quantum configuration of this element (showing both true and stealth orbitals, see Figure 9) differs somewhat from C, N and O. However the overall arrangement of Methionine presents the same arithmetic arrangements opposing the different types of orbitals in 3/2 value ratios as in Glycine, the other fundamental amino acid used in the genetic code.

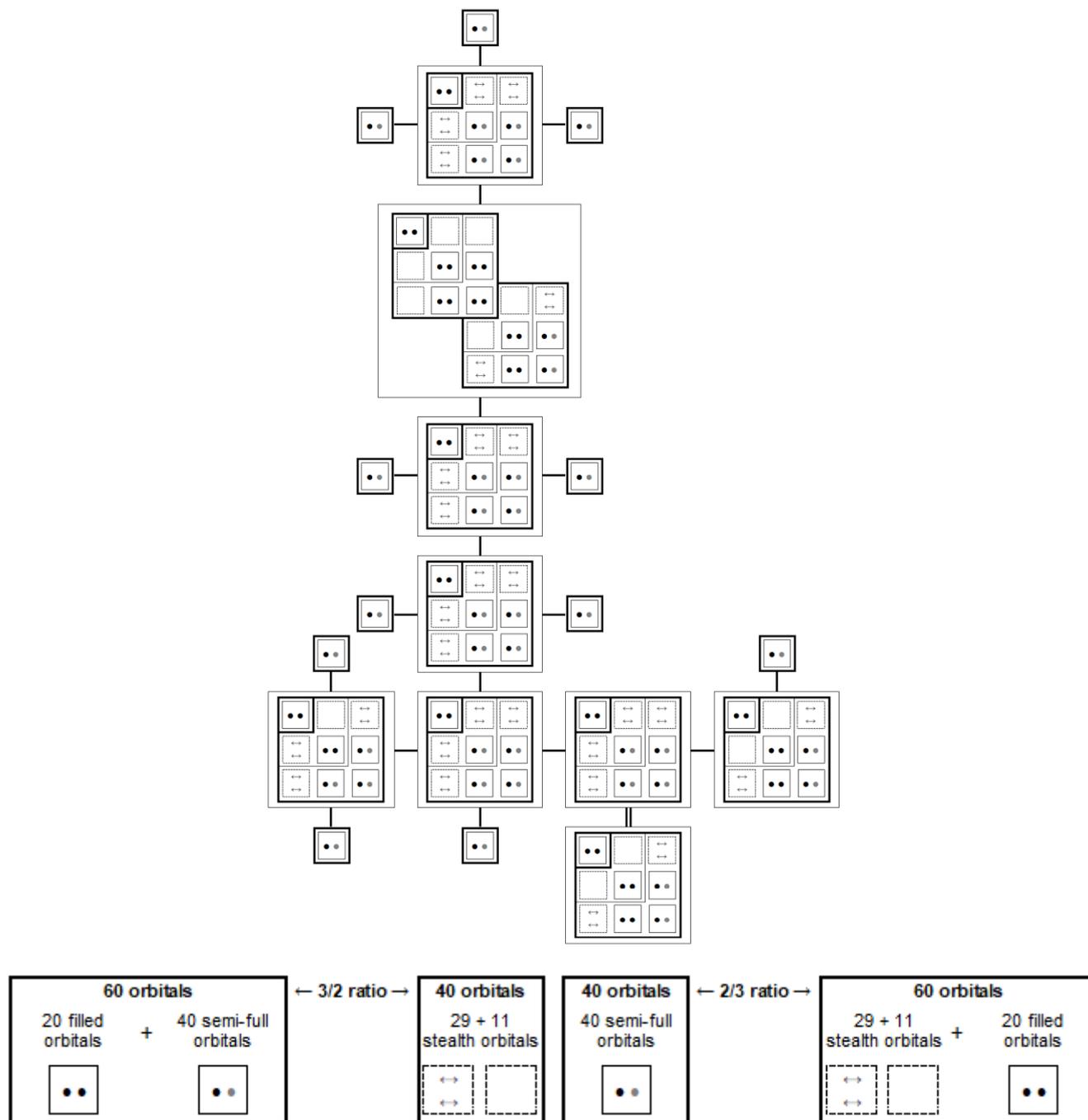**Complet quantum structure chart of Methionine**

Fig. 18 Quantum structure of Methionine in a chevron form quantum chart: 60 orbitals whose 20 filled orbitals and 40 semi-full orbitals, 40 stealthy orbitals. 80 own electrons (●) and 40 guest electrons (◌).See Fig. 17 to comparison.

7. Synthesis of graphic and quantum proposals

Before the conclusion of this article, a synthesis of the proposals made as much on their graphic representation as on their existence is essential about true and furtive orbitals and the quantum shells where they evolve.

Figure 19 summarizes the proposals made in this paper about the graphical and quantum representations of electronic shells of chemical elements. Here are illustrated the first three shells, but of course the same representation remains valid beyond.

We therefore proposed the representation of these quantum shells in bi-dimensional spaces square shape and we intuitively filled empty proposing the existence of stealth orbits which can be also called "quantum gates." Finally, we propose that these

quantum gates allow electrons to move instantly from orbitals to orbitals (and from atom to atom) by crossing singularities without space-time.

We have thus determined three possible quantum states in which these stealth orbitals can be found depending on the electronic environment that surrounds them but also generates them. Finally we were able to make several demonstrations of the functioning of all this electronic quantum structure in particular into the atomic and molecular components of the genetic code. The fact that arithmetic arrangements of the same nature are observed (in the form of a 3/2 ratio) as those previously introduced in the study [1] of the primordial constituents of the genetic code in the distribution of these real and stealthy orbitals reinforces the assumptions of existence of these last.
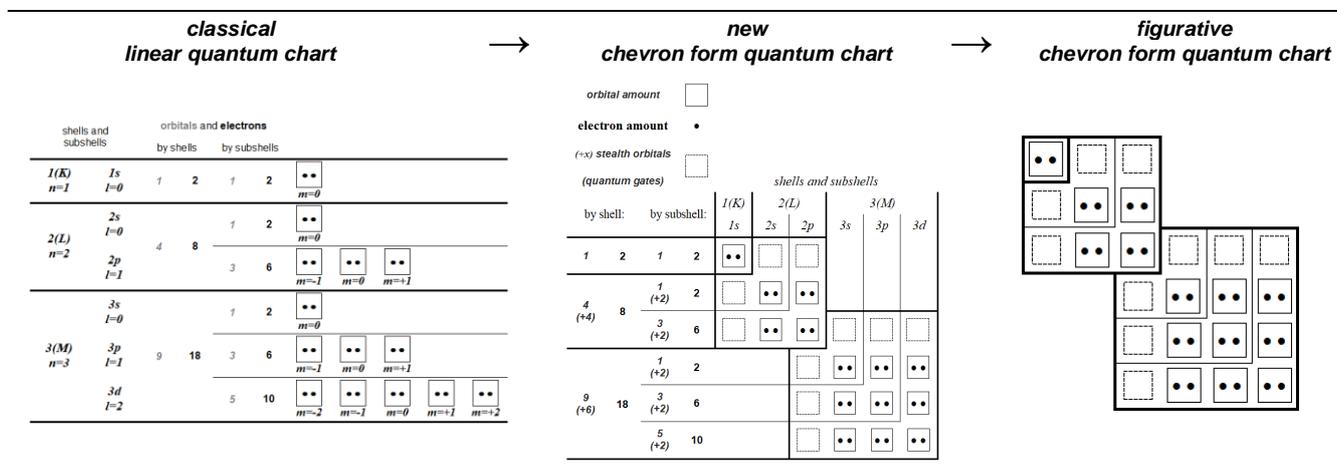

Fig. 19 Electronic quantum chart depiction of chemical elements from classical linear quantum chart to detailed chevron form quantum chart then figurative chevron form quantum chart. See Fig. 1, 2, 8 and 9 also.

Conclusion

To illustrate the quantum composition of the different chemical elements, it is possible to represent, in a non-linear form, the arrangement of various electronic shells and subshells as well as distribution of the atomic orbitals which they contain.

It turns out that a graphic illustration of quantum shells representing them in the form of chevrons allows an instant viewing of the arithmetic connection operating between the number of these shells and the number of orbitals they can host.

In such representation, the groups of orbitals indeed appear in the form of a square structure whose size of the sides is directly proportional to the number of the shells, i.e. to the principal quantum number n.

Also, this new chart design is more explicit in describing the quantum structure of chemical elements and molecules they can form than any other usual linear depiction.

For these reasons, we suggest that this graphics be privileged in the study and quantum descriptions of chemical elements (atoms) and molecules. Also, we propose the name of "chevron form quantum charts" to name this new physical graphic concept.

Intuitively, we think that this type of representation can reflect a true two-dimensional and quantum organization of the electronic clouds orbiting around atomic nuclei. Also, to fill the void of square-shaped quantum charts, we propose the existence of stealthy orbitals functioning as quantum gates and which allow the transit of electrons from orbitals to orbitals.

The fact that, in the components of the genetic code, the greatest sophistication in the organization of matter, both atomics orbitals and these quantum gates are in 3/2 arithmetic proportion reinforces our beliefs that the graphical quantum description of matter that is proposed in this article approaches physical reality.

Also, the existence supposed here of these sheath orbitals obliges to propose in the same way the existence of singularities without space-time.

If the existence of these entities turns out to be correct, that is to say the existence of quantum gates opening on singularities where electrons transit, then the possibility of transport beyond the speed of light may be the object of new quantum theories.

Appendix

This appendix is complement of 6.1 Chapter where it was illustrated the same ratio of opposition of the values of the numbers of the real and stealth orbitals of two groups of atoms constituting the chemical structure of the genetic code (proteinogenic

amino acids and DNA nucleotides).This is introduced here in order to further support the hypothesis of the existence of stealthy orbitals.

So, the opposition of the values of Carbon, Nitrogen and Oxygen to those of Hydrogen and Sulphur (Phosphorus for nucleotides in DNA), always generates an arithmetic ratio of value 3/2 according to multiple criteria studied.

The table in Figure 20 lists the impressive series of quantum situations in which this remarkable duality takes place between sets of 3x entities versus 2x entities. Thus, the ratio for the numbers of electron subshells (1s, 2s, 2p, 3s, 3p) is 3/2. It is still 3/2 if we detail the subshells of those where the quantum number $l = 0$ of those where the quantum number $l = 1$.

Also, the ratio for the numbers of orbitals is 3/2. It is still on 3/2 if we detail the orbitals of those where the quantum number m = 0, of those where the quantum number m = - 1 and those where the quantum number m = 1. This ratio is always 3/2 if we detail the orbitals of those where the quantum number l = 0 of those where the quantum number l = 1. Also, the maximum number of electrons that can orbit inside all of the electronic shells of these two groups of atoms is still in a ratio of 3/2: thirty electrons can orbit inside the electronic shells of Carbon, Nitrogen and Oxygen versus twenty on the electron shells of Hydrogen and Sulphur (Phosphorus for DNA bases).

For this last criterion, the distinction of the electrons which can orbit either on the first internal shell (2 electrons for each of the five atoms) or on the set of the other (external) shells always opposes the different values in ratios 3/2: 6 versus 4 electrons for the inner shell and 24 versus 16 for the other shells.

Quantum criteria:	Atoms to **even number** of electron quantum shells				Atoms to **odd number** of electron quantum shells	
	Carbon	**Nitrogen**	**Oxygen**		**Hydrogen**	**Sulphur***
Number of atoms	1	1	1		1	1
		3 atoms		← **3/2 ratio** →	**2 atoms**	
Number of electron shells (*K, L, M*)	Carbon 2	Nitrogen 2	Oxygen 2		Hydrogen 1	Sulphur* 3
		6 electron shells		← **3/2 ratio** →	**4 electron shells**	
Number of subshells (*1s, 2s, 2p, 3s, 3p*)	Carbon 3	Nitrogen 3	Oxygen 3		Hydrogen 1	Sulphur* 5
		9 subshells		← **3/2 ratio** →	**6 subshells**	
Number of subshells where the quantum number *l* = 0 where the quantum number *l* = 1	Carbon 2 1	Nytrogen 2 1	Oxygen 2 1	← **3/2 ratio** → ← **3/2 ratio** →	Hydrogen 1 0	Sulphur* 3 2
		6 subshells where *l* = 0 **3 subshells** where *l* = 1			**4 subshells** where *l* = 0 **2 subshells** where *l* = 1	
Maximum number of orbitals	Carbon 5	Nitrogen 5	Oxygen 5		Hydrogène 1	Soufre* 9
		15 orbitals		← **3/2 ratio** →	**10 orbitals**	
Number of orbitals where the quantum number *m* = 0 where the quantum number *m* = - 1 where the quantum number *m* = 1	Carbon 3 1 1	Nitrogen 3 1 1	Oxygen 3 1 1		Hydrogen 1 0 0	Sulphur* 5 2 2
		9 orbitals where *m* = 0 **3 orbitals** where *m* = -1 **3 orbitals** where *m* = +1		← **3/2 ratio** → ← **3/2 ratio** → ← **3/2 ratio** →	**6 orbitals** where *m* = 0 **2 orbitals** where *m* = -1 **2 orbitals** where *m* = +1	
number of orbitals where the quantum number *l* = 0 where the quantum number *l* = 1	Carbon 2 3	Nitrogen 2 3	Oxygen 2 3		Hydrogen 1 0	Sulphur* 3 6
		6 orbitals where *l* = 0 **9 orbitals** where *l* = 1		← **3/2 ratio** → ← **3/2 ratio** →	**4 orbitals** where *l* = 0 **6 orbitals** where *l* = 1	
Maximum number of electrons orbiting on quantum shells of which the first shell (internal) of which the outer shell (s)	Carbon 10 2 8	Nitrogen 10 2 8	Oxygen 10 2 8		Hydrogen 2 2 -	Sulphur* 18 2 8+8
		30 electrons **6 electrons** **24 electrons**		← **3/2 ratio** → ← **3/2 ratio** → ← **3/2 ratio** →	**20 electrons** **4 electrons** **16 electrons**	

Fig. 20 Highlighting of 3/2 ratios of the electron shells and subshells, orbitals and maximum numbers of electrons according to the parity of the number of electron shells of the five atoms constituting the twenty amino acids (* Or Phosphorus for DNA). Other 3/2 ratios generated in relation to the values of the many different quantum numbers of the electrons. See Fig. 12 and 16.

Thus, fourteen different quantum criteria oppose, in a duality of 3/2 ratio, the five atoms constituting the twenty amino acids (and also constituting the four DNA bases with the Phosphorus in place of Sulphur). The fact that the genetic code is organized only with these five different atoms in this duality is therefore not random.

The perfect complementarity of the quantum characteristics of Hydrogen and Sulphur (Phosphorus in DNA) is particularly remarkable. These last two atoms have indeed very different quantum characteristics (in contrast to Carbon, Nitrogen and Oxygen with common characteristics) which however complement each other perfectly to always oppose in a 3/2 ratio to three other atoms, constituents of amino acids (and DNA bases). For example, Sulphur has a maximum number of nine orbitals versus only one for Hydrogen. These two very different values nevertheless complement each other (10 orbitals) to oppose in a duality of 3/2 ratio to the three times five quantum orbitals of Carbon, Nitrogen and Oxygen (15 orbitals).

Thus, the 3/2 ratio is revealed at the bottomest of the subatomic structure of the constituents of the twenty amino acids that are on the one hand the three atoms of Carbon, Nitrogen and Oxygen and on the other hand the two atoms of Hydrogen and Sulphur. It is therefore remarkable to note that these same phenomena are found in DNA, another mechanical component of the genetic code, where the quantum properties of the Phosphorus mimic those of Sulphur.

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Jean-Yves BOULAY independent researcher (without affiliation) – FRANCE
jean-yvesboulay@orange.fr   ORCID:0000-0001-5636-2375