THE GOD PARTICLE

THE UNIT OF THE UNIVERSE

THE TEN DIMENSIONS OF SPACE-TIME

RAFAEL POZA

THE GEOMETRY THAT UNIFIES THE MULTIVERSE

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THE UNIT PARTICLE OF THE UNIVERSE

THE UNIT PARTICLE

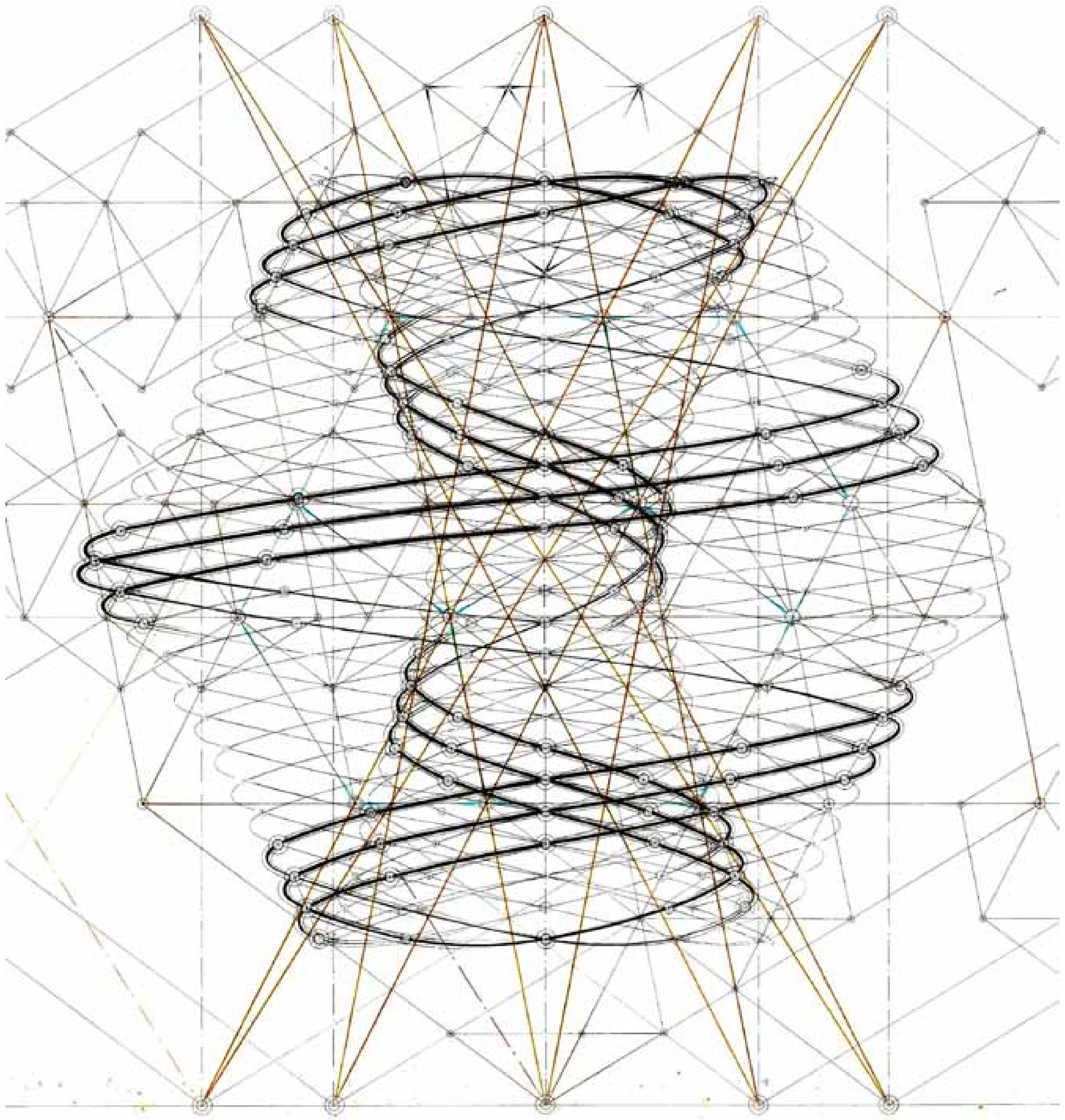
A minimum particle exists that is the unit of the three-dimensional physical space. It is the particle that gives matter mass. It is the basis of all elements that form nature. All chemical elements in the periodic system are made up of a certain number of units of this particle.

This particle is composed of ten vibrating strings or filaments. Each of these filaments is a helix that makes five revolutions around the particle's vertical axis; two and a half revolutions are located in the exterior and the rest in the interior of the particle, completing a closed circuit. Three of these filaments stand out among the rest due to their brightness and this difference makes the whole set look like two arms separated in 180º when being observed from the particle's poles.

Every helical filament is wrapped in a spire set. In turn, these spires are wrapped in other minor spires, and so on until completing a total number of six spire sets.

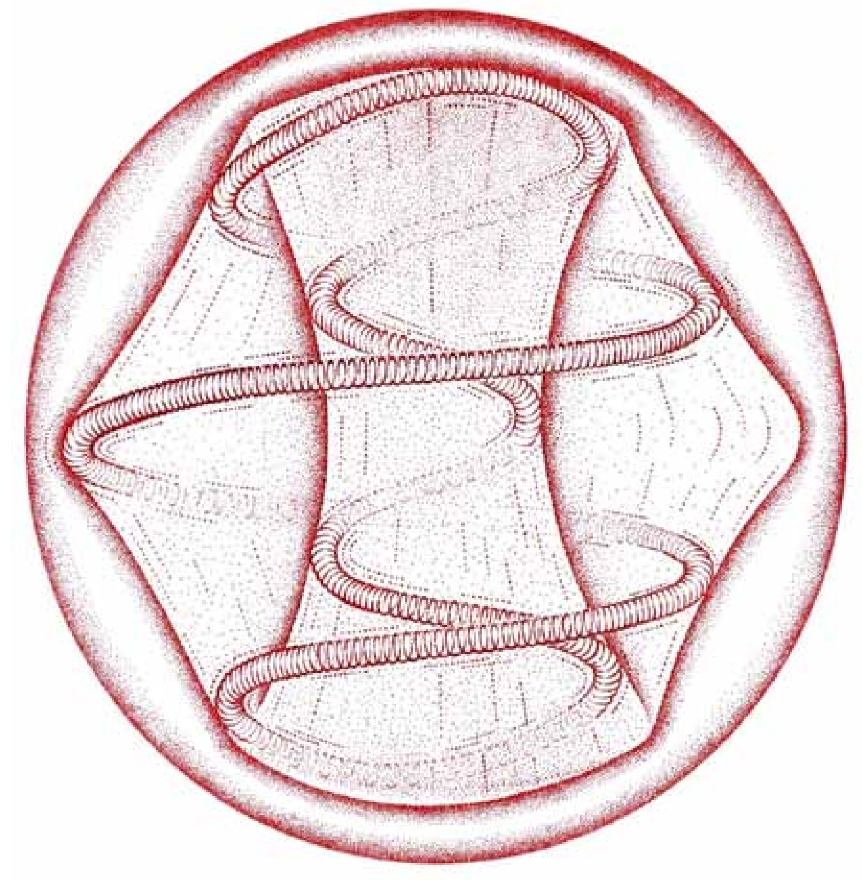
The whole structure formed of such helical filaments is a hyperbolic surface toroid that shows a slightly negative curvature. This form is a hyperbolic hyperboloid that belongs to the Riemann or ruled surfaces.

When 18 units of this basic particle are arranged in a certain geometric structure, the hydrogen-1 isotope originates. The hydrogen-2 is made up of 36, and the hydrogen-3 contains 54. The helium-3 isotope, just like the hydrogen-3, has 54 particles although its geometric form is different. The helium-4 already contains 72. In this way it becomes apparent that the physical-chemical elements add 18 basic units of quantum growth in their consecutive isotopes. Other two examples are copper and gold: The two stable isotopes of copper, while presenting the same geometric form, have 1134 and 1170 particles respectively; on the other hand, gold contains 3546 unit particles in its characteristic form, dynamic and splendid.



Even though the particle may be affected by some external forces, it also moves on its own in the following way: It spins on its vertical axis of symmetry, and at the same time exhibits a slight orbital motion and a pulsation.
In order to better understand this particle and know its origins, we are analyzing it from a mathematical and geometrical perspective, without forgetting natural sciences.

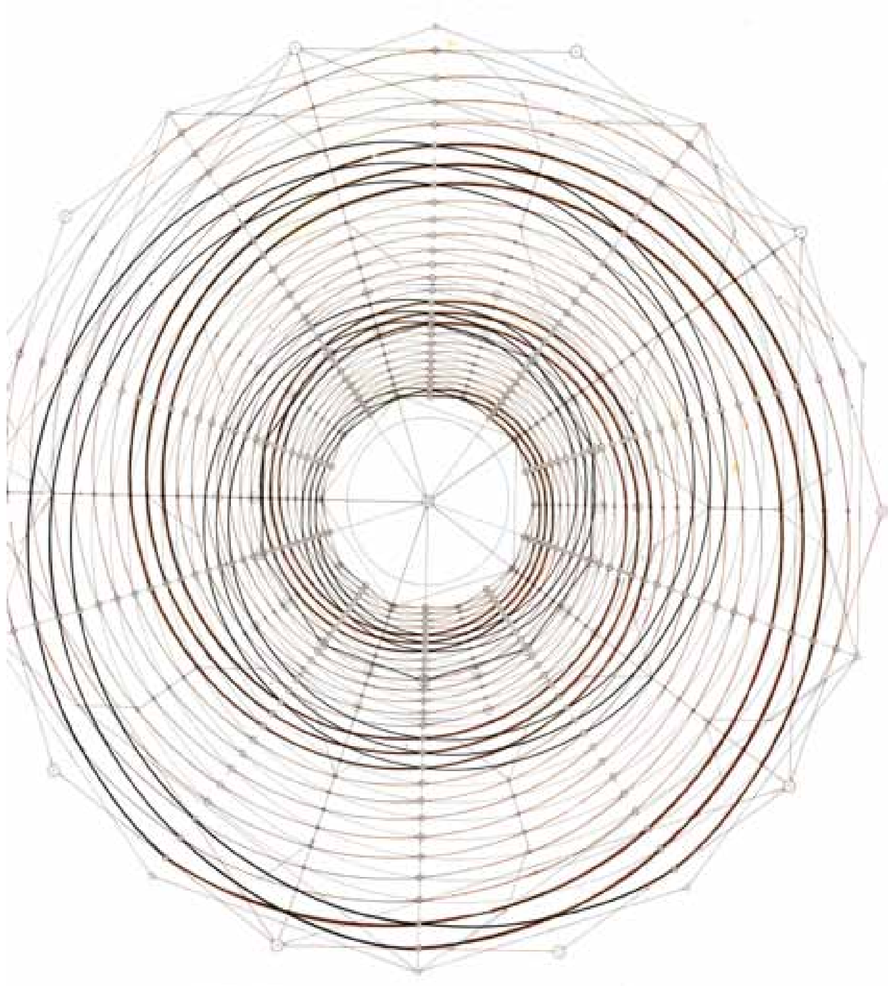
On the right, elevation view of a filament that shows the first spire set.



The ten helical filaments are identical. They only differ in their position, that is to say that they are distributed every 36 degrees around the circumference.

If we study the trajectory of each of these ten helical filaments of the unit particle it is verified:

- That it takes five revolutions for any filament to complete its path from any starting point.

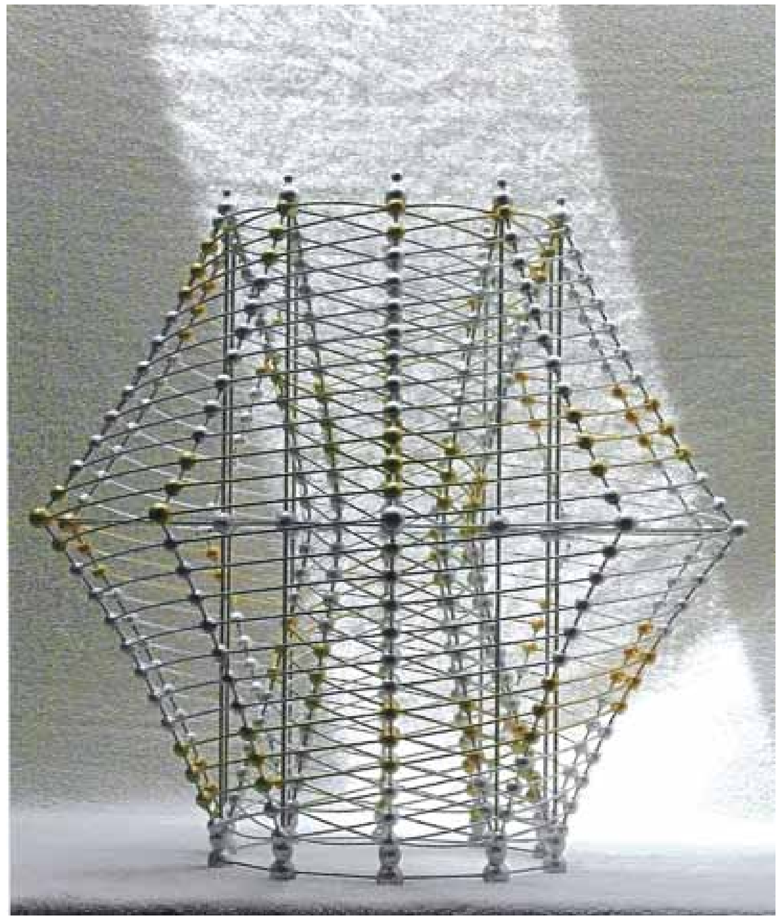


-A double symmetry, since there are two points along any filament's path that are diametrically opposite, in elevation and plan. On the one hand, the inflection point (at which the toroid's outer surface turns into its inner one) that is located on the upper pole, where the filament departs from.On the other hand, the point where the filament reaches the lower pole after having run across the interior of the particle.

On the left, plan view of the ten filaments.

Geometrically, the figure of the particle has spheroidal limits. Both the equatorial area and the poles, where the exterior surface becomes interior and vice versa, come into contact with the spheroid.

The third motion the particle has , that is pulsation, takes place when the energy flows through its filaments. This energy, which descends from the fourth dimension, is released through the nucleus of the toroid to continue flowing through the filaments towards the exterior. When reaching the north pole the filaments bend and, from this point, the energy keeps on circulating across the exterior surface towards the equatorial area, where the toroid reaches its maximum width.



Next, the energy carried by the conductive filaments continues its flow across the exterior surface of the toroid until reaching the south pole, where the filaments bend again to follow their path towards the nucleus. At this point the pulsation ends,when the energy reaches the nucleus of the toroid.

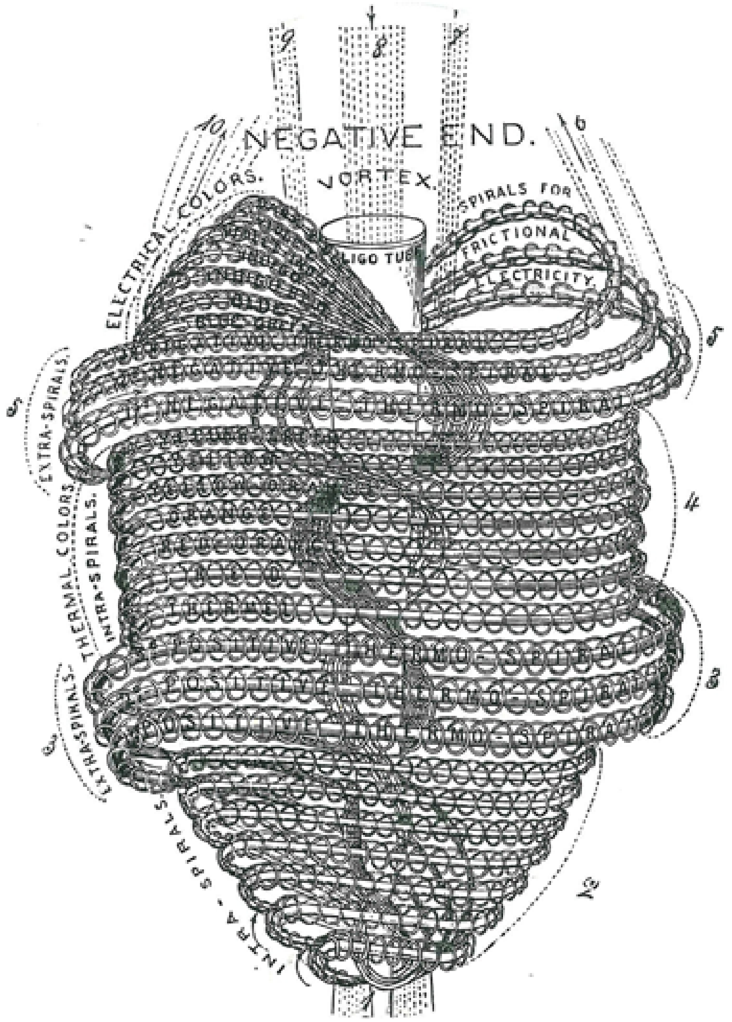
In conclusion, the pulsation of the particle is originated in the fourth dimension via the nucleus of the toroid; then it spreads until reaching the equatorial area of the toroid, where the particle's maximum size in the third dimension is attained.

The particle fulfills the function of interrelating the two wavelengths that are defined by both the three-dimensional and four-dimensional particles' dimensions.

HISTORY OF THE UNIT PARTICLE

Although both the particle and its features had been mentioned by several authors throughout history, it was not until the work about light and color that the New Yorker physician Edwin Babbitt published in 1877 that this particle started to be studied in detail.

This author presents in his study a beautiful and exact drawing of the unit particle's form and describes some of its features relating to light and color.



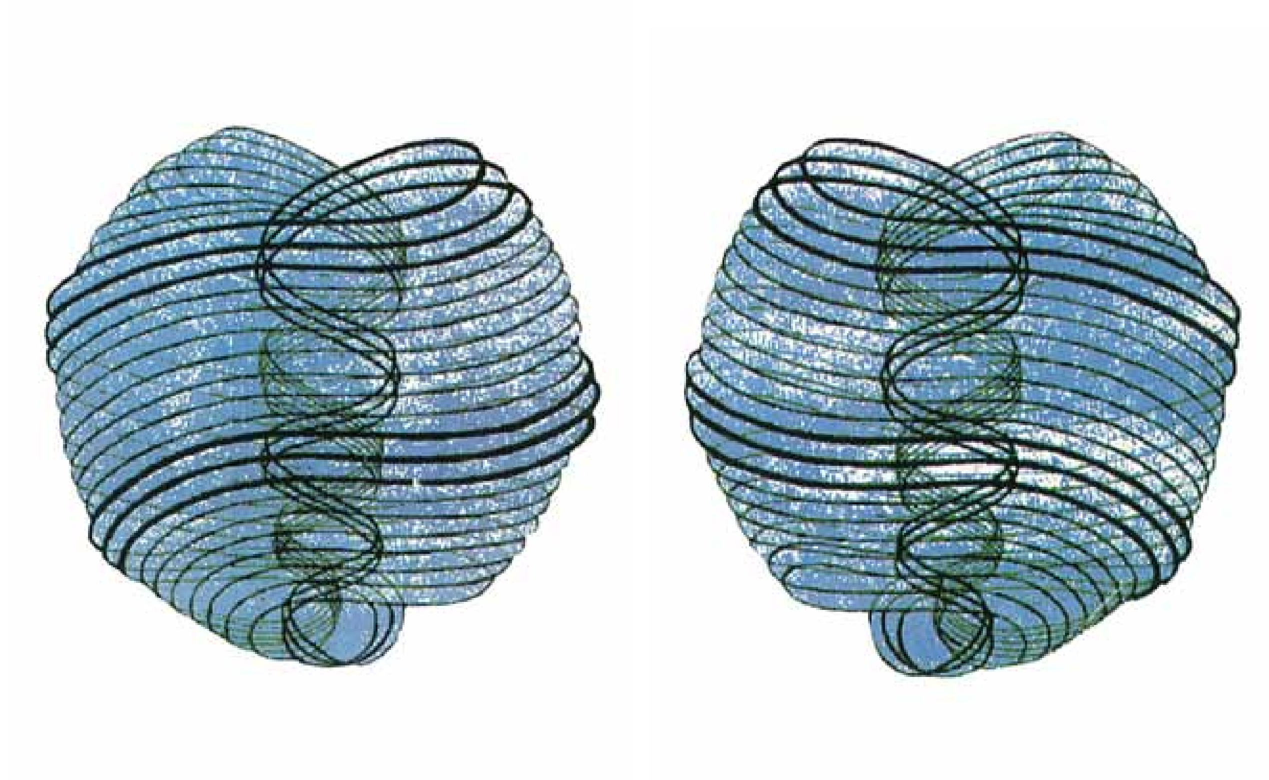
Babbitt even specifies the way in which different particles join, that is by attaching their respective filaments. He also describes in detail the different sizes of the spires that wrap around the filaments.

The unit particle, in Babbitt's drawing, is represented as it is observed from nature. The particle shows a flattened appearance at its top and slightly pointed at its bottom as a result of the energy circulation.

This representation is similar to the plasticity that Earth's magnetosphere exhibits when being hit by the solar wind. This magnetic field is flattened at the area where the solar wind impacts and stretched at its rear.

Although it is not reflected in the picture above, Babbitt states that the filaments show a surface continuity both in their internal and external paths.

Some years after Babbitt's work, in 1895, a team made up by A. Besant, C.W. Leadbeater and C. Jinarajadasa presented another study on the unit particle in a exhaustive work on the elements of the periodic system.



This team described the particle having its double formal presentation into consideration, that is turning right and left. In this way, on the one hand the particle may be considered positive since it is the source from which the energy comes, and on the other hand negative since this energy also disappears through the particle itself.

The same as Babbitt, these authors presented the particle as it is observed from nature, with the characteristical heart shape as a result of the existing interaction between the plasticity of the matter and the energy circulation.

Unlike this formal difference, mathematically the unit particle does not present any topological variation, showing a clear geometric symmetry.

Nowadays and thanks to the orthogonal projection system we can represent the unit particle mathematically, with its proportioned dimensions in elevation and plan views.

THE UNIT PARTICLE AND DARK MATTER

The unit particle is the basic component of all matter in Nature.

The hydrogen-1, made up of 18 unit particles, starts the periodic table. From this point and successively, all elements of the periodic system are obtained by adding quantum increases of 18 units.

When the number of unit particles is less than 18 the resulting matter is ionized, which is called dark matter. In fact,this kind of dark matter consists of four different states of plasma.

The three-dimensional physical matter in nature exists in seven different states. All matter can change from one state to another due to a change of temperature or pressure. At room temperature the difference is given by the pressure.

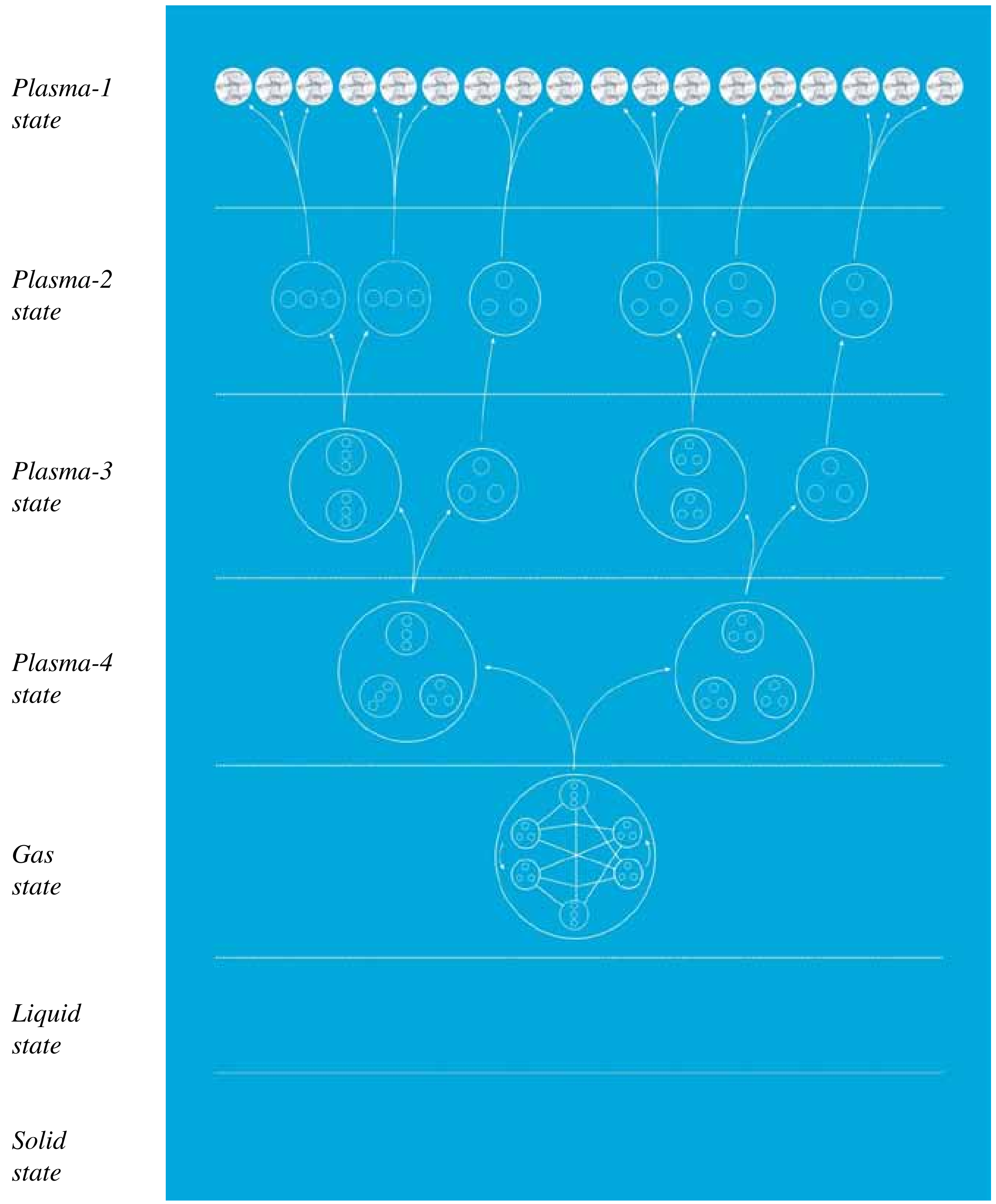
On the next page the dissociation of a hydrogen-1 atom is detailed, from its gas state to its plasma-1 state, in which the unit particles are already freed.

Initially, the hydrogen-1 in gaseosus state is made up of six corpuscules, of three unit particles each, which are located at the vertices of an octahedron, forming a group of two triangles that rotate on their vertical axis. The unit particles within the corpuscules at the poles of the axis are distributed linearly; these particles are arranged on triangles within the other four corpuscules which are on the equatorial plane.

When hydrogen changes to the fourth plasmatic state, which is the densest state of plasma, the capsule that encloses the corpuscules in the gas state disintegrates, so that these are rearranged in a triangular disposition within two new spherical bodies. One is positive and the other negative.

In the plasma-3 state both bodies disintegrate, so that the positive one divides into two other bodies where the first is made up of two corpuscules whose unit particles are arranged linearly within their boundaries and the second, which was already present in the plasma-4 state, is now free. At the same time, the negative body is split up into two other bodies, one containing two negative particles and a second which is positive and free.

The two corpuscules which remain free in the third plasmatic state change to plasma-2. At the same time, the two other bodies lose their wrappings, releasing their respective corpuscules. The ones with a linear disposition of their unit particles are positive, whereas the others, with a triangular disposition, are negative.



Finally, in plasma-1, the wrappings of the bodies are again disintegrated, releasing their inner particles. In this way 18 unit particles, 9 positive and 9 negative, are freed.

ORIGIN OF THE UNIT PARTICLE

THE UNIT PARTICLE IN THE EXACT SCIENCES

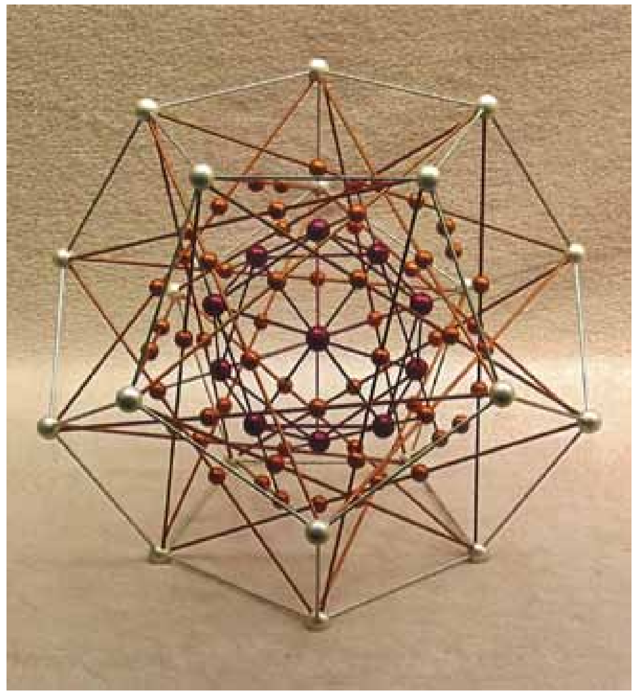
The origin of the unit particle is geometric.

Geometry deals with the whole of forces and energies which are studied by physics and chemistry, among other disciplines, that provide knowledge about matter and energy existing in nature. It also analyzes the different spatial structures and studies their formal origins.

Three great theorems which lead us to the geometric origin of the unit particle are described next. These theorems are related to the five regular polyhedra.

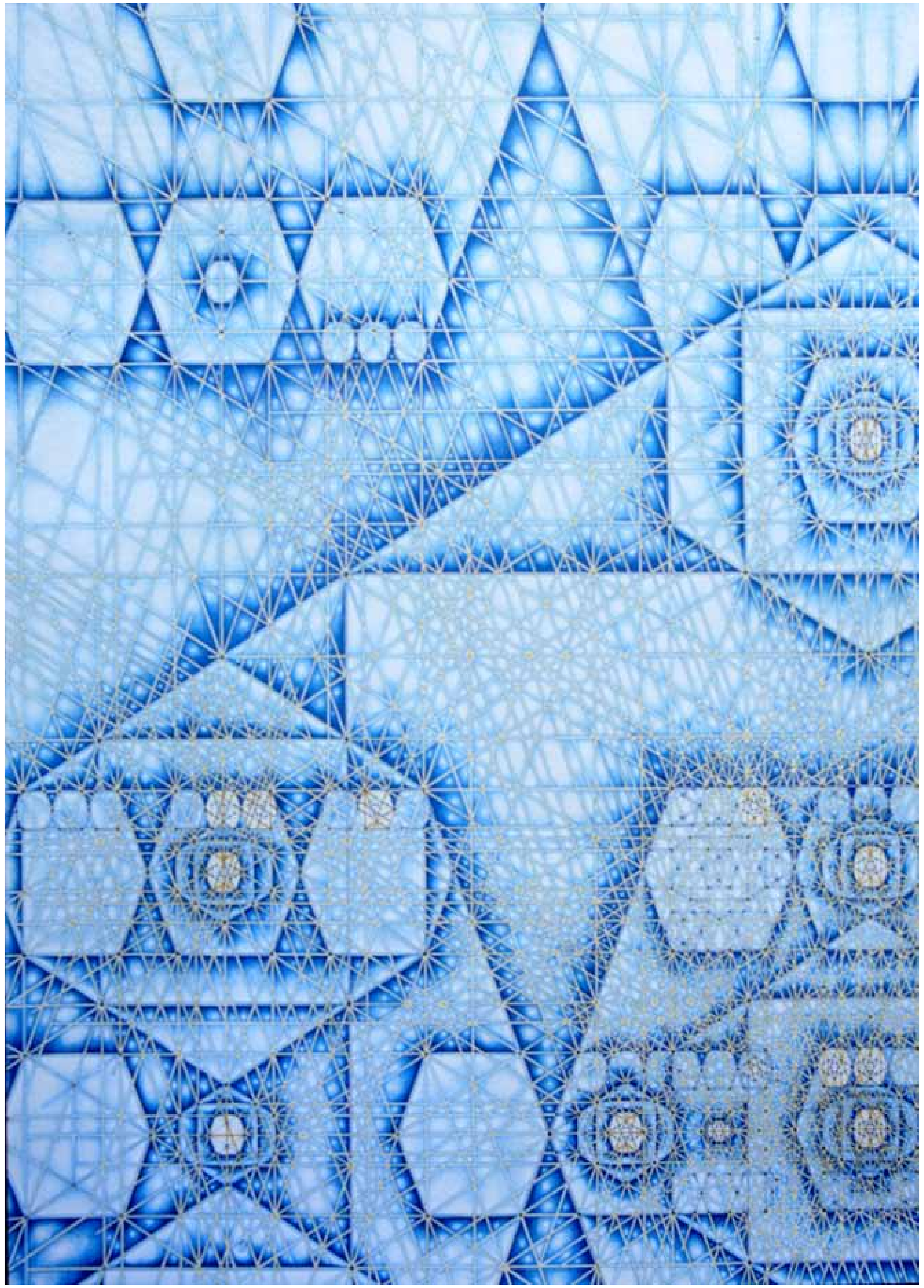
-.<u>First Theorem or Theorem of the Spatial Net</u>:

The five regular polyhedra are interrelated, forming a spatial net in which it is possible to pass from one to another polyhedron.



The edges between two vertices of the five different polyhedra form one-dimensional lines, resulting in five different systems of edges. In turn, each of these systems of edges form the respective polygons, which are two-dimensional. Finally, these two-dimensional units arrange in the five polyhedra that constitute the net or three-dimensional structure.

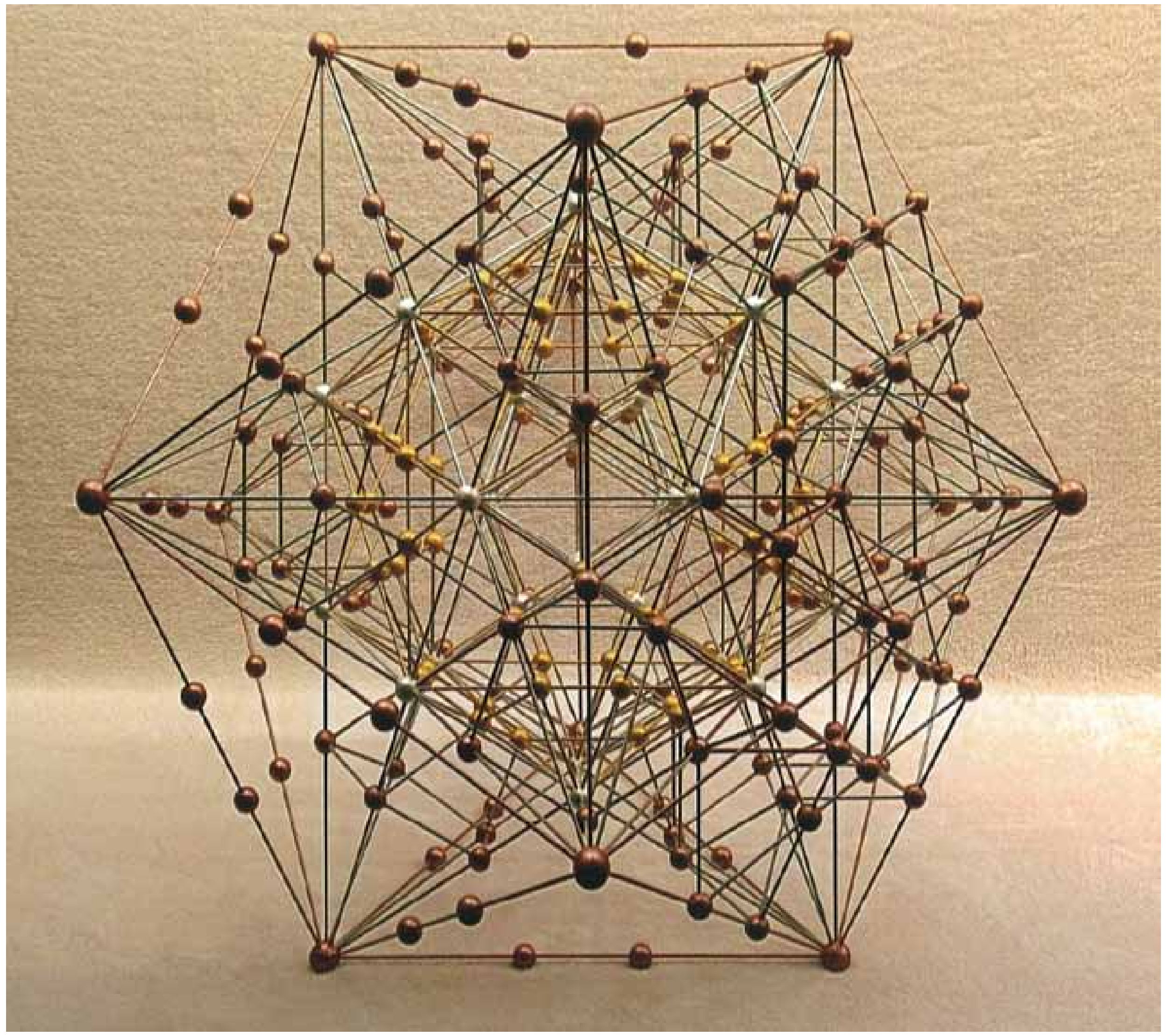
In the three-dimensional structure of the picture on the left it can be observed an icosahedron in its central zone. The extension of its edges generates the dodecahedron. The length of the resultant dodecahedron's edge is equal to the product of the icosahedron's edge and the golden ratio ($de = ie \cdot \Phi$) .



Orthogonal projection of a region in the spatial or polyhedral net.

After the dodecahedron has been obtained from the icosahedron, the former operation which consisted in extending the edges may be repeated, so that by doing so with the dodecahedron's edges the result is the major icosahedron.

In this case the major icosahedron's edge is equal to the product of the dodecahedron's edge and the square of the golden ratio (major ie = de · Φ^2) .



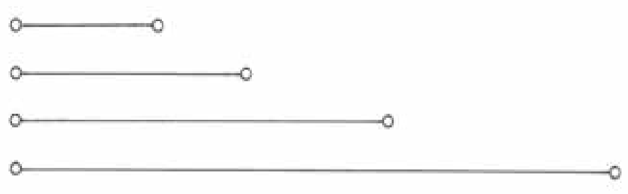
In the polyhedral net the diagonals of the dodecahedron's pentagonal faces generate twelve star pentagons and, at the same time, those are the edges of the form which results from the intersection of the five hexahedra.

The hexahedron's edge is equal to the product of the dodecahedron's edge and the golden ratio (he = de · Φ) .

Finally, the major icosahedron's edge is equal to the product of the central minor icosahedron's edge and the cube of the golden ratio (major ie = minor ie · Φ^3).

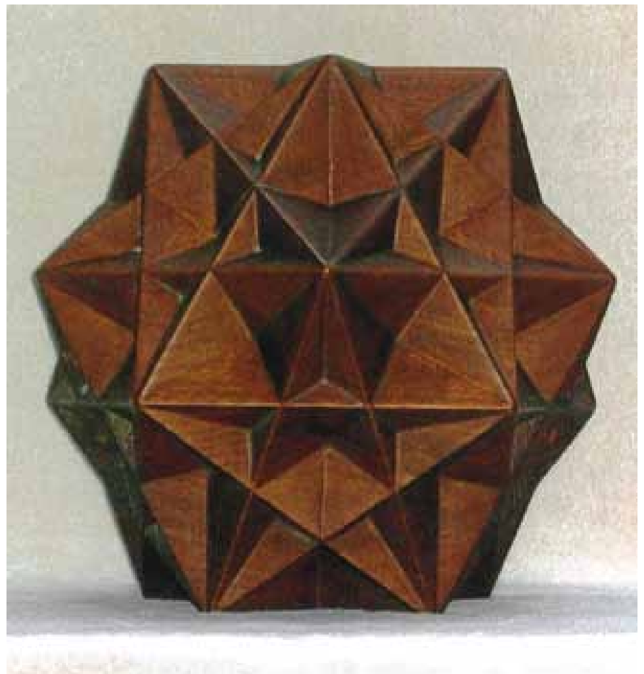
Therefore, in the polyhedral net it is established the following relationship between its edges:

Central minor icosahedron's edge
Dodecahedron's edge = ie · Φ
Hexahedron's edge = de · Φ
Major icosahedron's edge = he · Φ

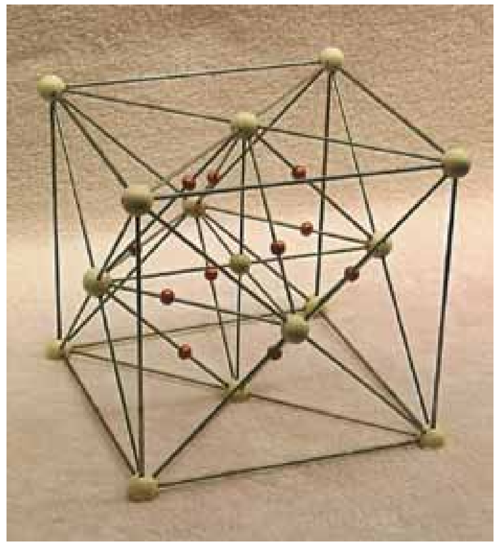


finally resulting that:

Major icosahedron's edge = Minor icosahedron's edge · Φ^3



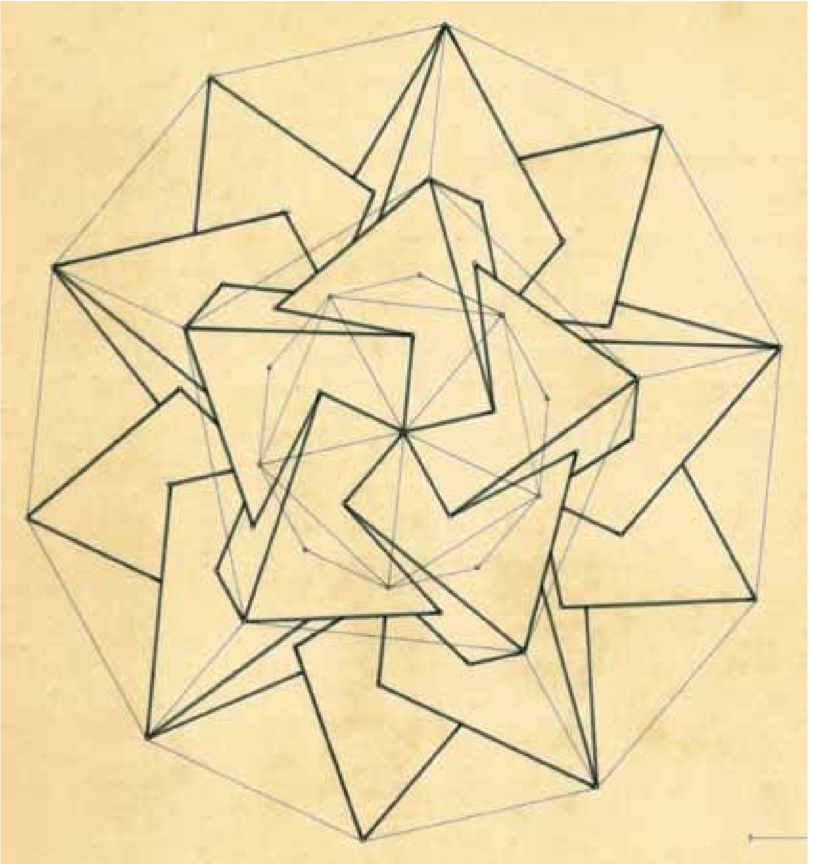
In the two pictures above it can be observed both the intersection of the five hexahedra, whose vertices generate the dodecahedron's vertices, and the hexahedra's edges that give rise to the twelve star pentagons.



With regard to the hexahedron, the diagonals of its faces give rise to two tetrahedra that intersect in an angle of 90º. The octahedron arises from their intersection, being its vertices located in the center of the hexahedron's faces.

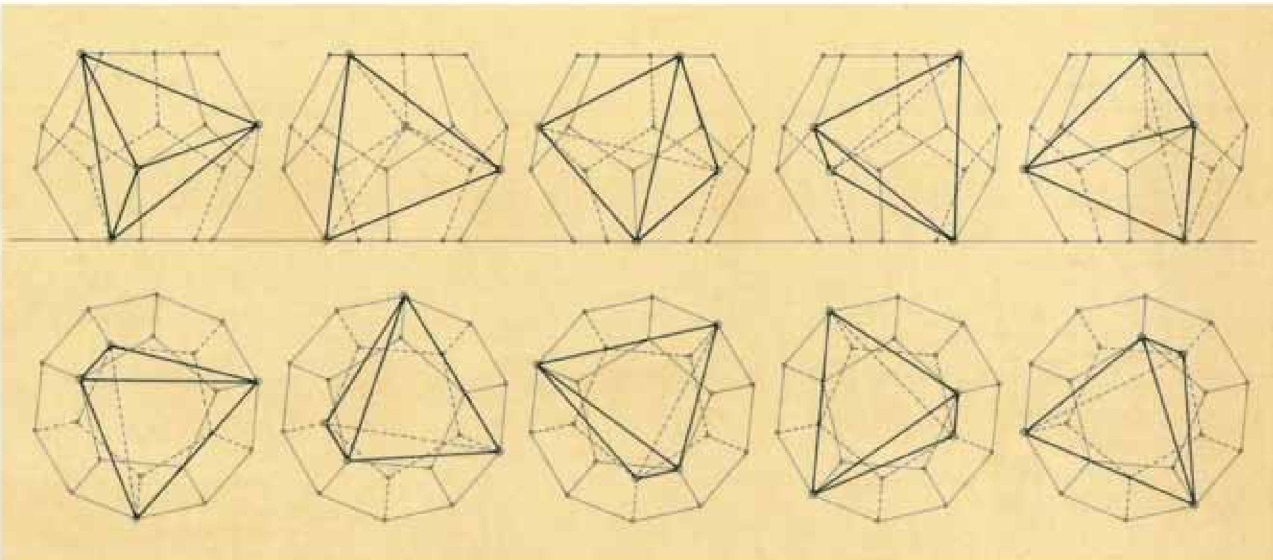
The internal icosahedron arises by joining the points on the octahedron's edges which coincide with the golden ratio value.

In the analysis of the net existing in the space it is observed a special figure which is the result of the intersection of the five tetrahedra. Its vertices give rise to the dodecahedron in the exterior; the internal icosahedron arises from the part the five tetrahedra share.

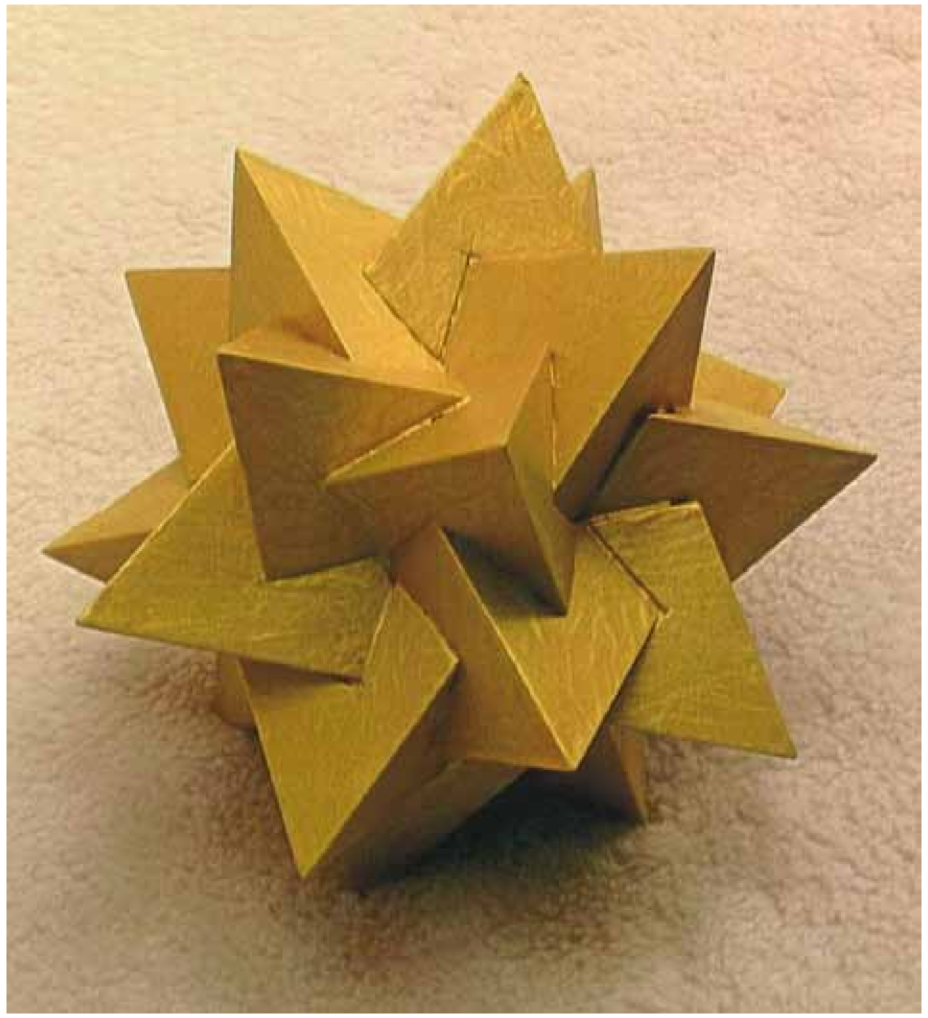


Although the Pythagorean knowledge has always been familiar with this beautiful figure,it remained forgotten for a long time until being rediscovered by the Spanish Arturo Soria y Mata, at the beginning of the 20th century, when he was collaborating with the formerly mentioned research team in the geometric study of the periodic system of the elements.

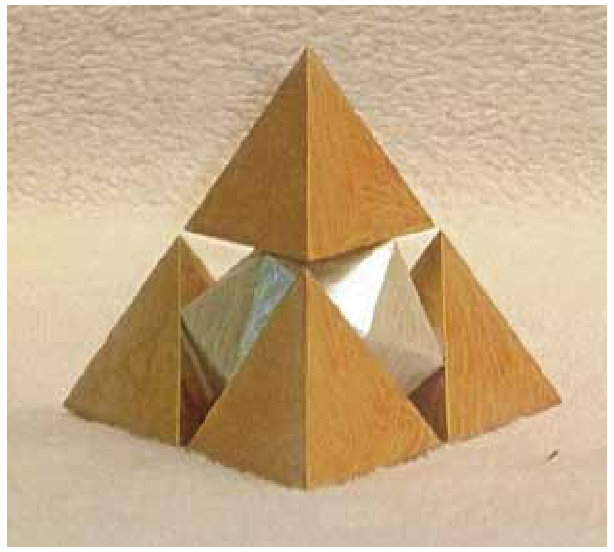
Without expanding on its description, it may and must be said that it consists in a geometric structure that appears located in the center of the atomic nucleus of certain elements. In this way, we find this form in the noble gases from neon, which present 120 unit particles that are distributed at a rate of six units per each of its twenty vertices.



Tetrahedron spinning progressively in the interior of the dodecahedron, giving birth to its five different positions.



This figure, which is made up of 120 unit particles in the noble gases, also exists in other elements, such as tin. Other examples are titanium and zirconium, which show, in their structures, the distinctive feature of an extra unit particle which is, in turn, surrounded by other seven, located deeper, so that each of both elements contains a total of 128 particles.



If we analyze any tetrahedron out of the five which make up this figure, it can be observed, in its interior and coinciding with its faces, four out of the twenty the icosahedron has.

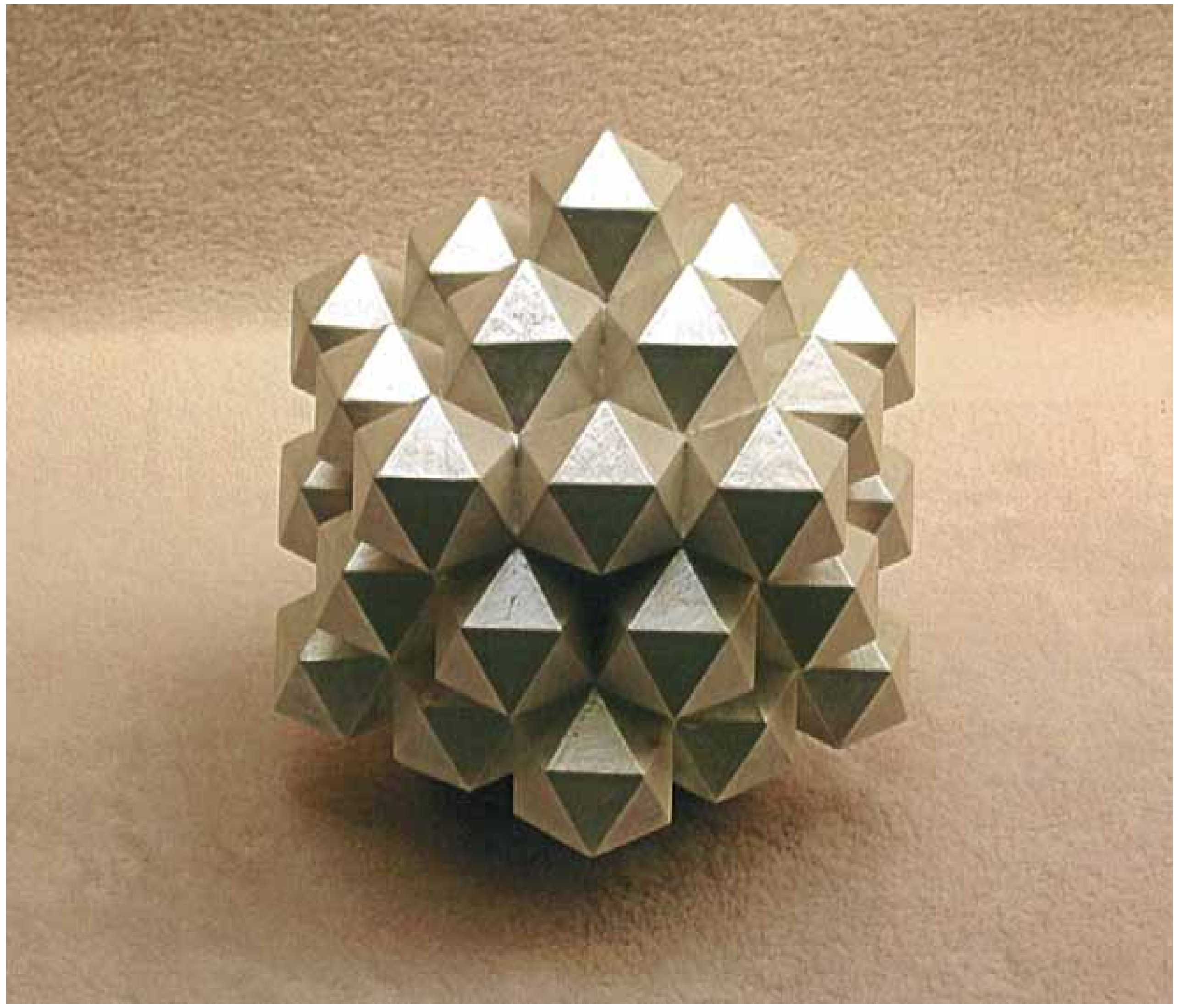
Each edge of the inscribed icosahedron is located on the straight line that links a vertex of any face of the tetrahedron and the point on its opposite edge coinciding with the golden ratio value.

After having described the contents of the first theorem of Theorem of the Spatial Net (the five interrelated polyhedra arise from the spatial net and it is possible to pass from the internal, minor icosahedron to the external, major one), we are proceeding to the second theorem.

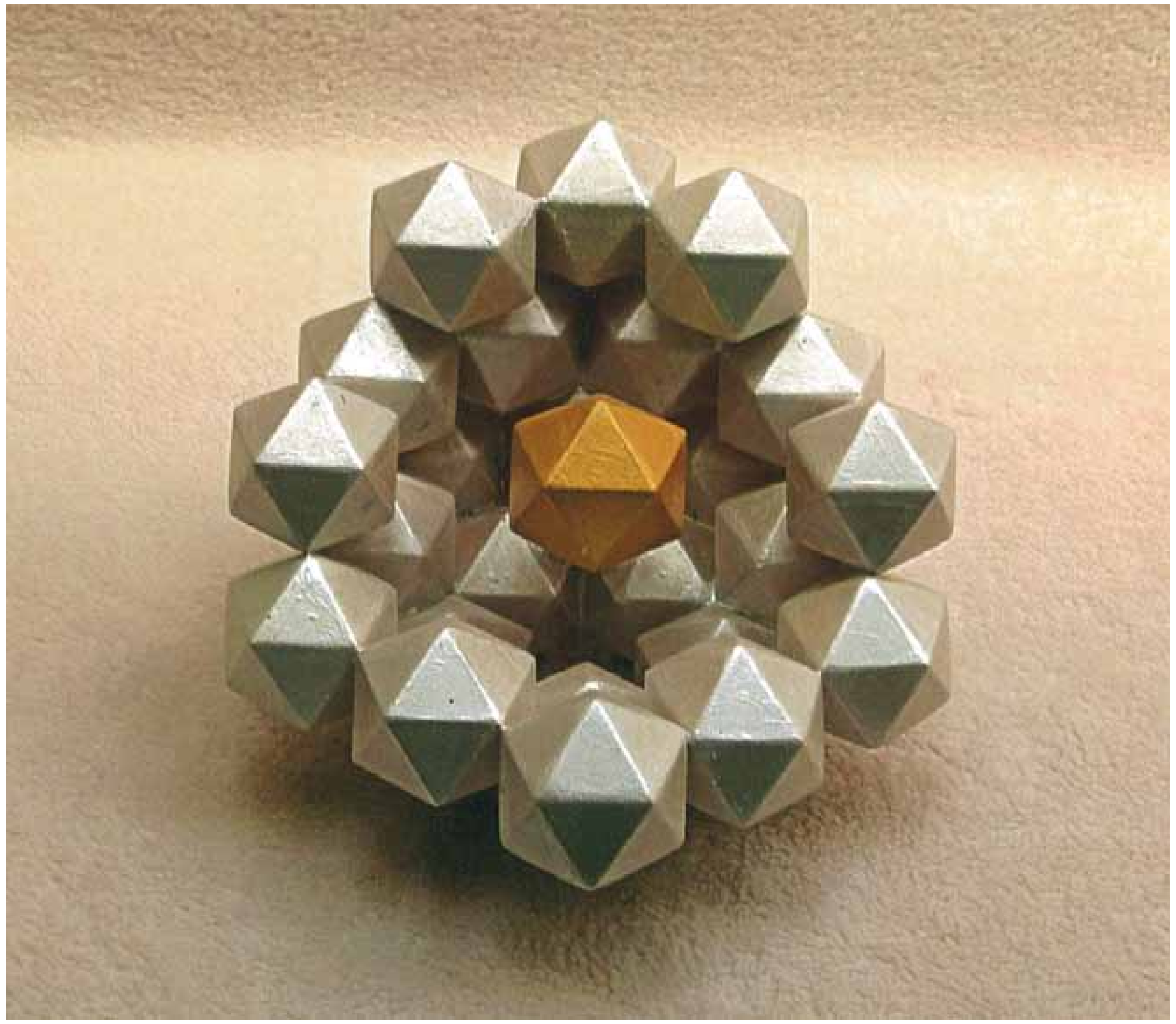
-. Second Theorem or Theorem of the Fractal Geometric Structures in the Different Dimensions.

Geometrically, the perpendicular to a straight line gives rise to a two-dimensional flat surface. Another perpendicular to the plane results in the third dimension. From this stage, the fourth dimension is attained by means of the same right angle projection process that is known as orthogonal projection.

After having described this process we are going to study the correspondence between the icosahedral units in the third and the fourth dimensions.



External view of the four-dimensional units contained in the three-dimensional icosahedral unit. As it can be observed, three minor icosahedra pertaining to the fouth dimension are located on each edge of the major icosahedron, in the third dimension.



Internal view where the central four-dimensional unit is observed.

The internal icosahedron of the spatial net gives rise to thirty icosahedra, which are located in the center of the thirty edges of the major icosahedron, when it is projected towards the exterior by means of a process consisting in sliding along the three perpendicular spatial axes, which is repeated five times since the icosahedron is made up of five tetrahedra. Those thirty icosahedra, along with the twelve which are obtained from the projection of the axes which pass through the vertices of the major icosahedron, make up a total of 42 icosahedral figures that are in contact and form a closed body.

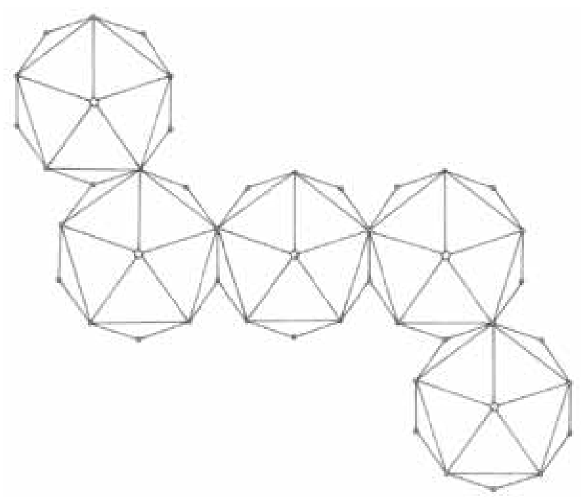
These 42 external units along with the central one and the six interrelating units that are located on the three perpendicular axes bring together a total of 49 units. Thus, the 3D icosahedral unit corresponds to 49 units pertaining to the fourth dimension.

When continuing with this projection process the fifth dimension is attained, where the icosahedron presents 49^2 units.

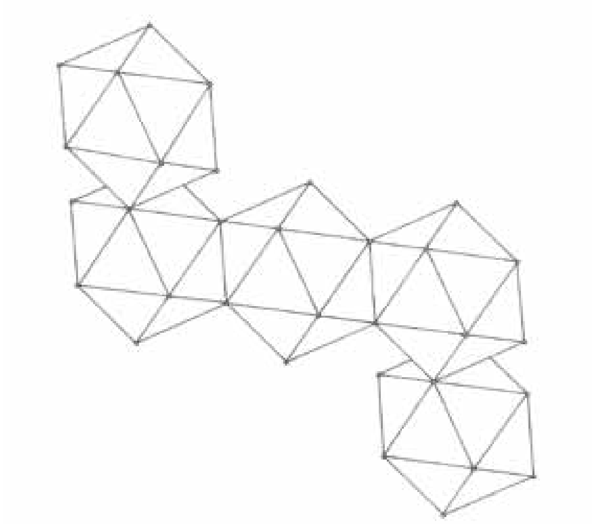
As soon as the ninth dimension is reached, after having repeated the same process six times, the number of units the 3D icosahedron contains is 49^6.

The 49 four-dimensional units which make up the three-dimensional icosahedron can be analyzed according to their position, that is leaning on their vertices, edges or faces.

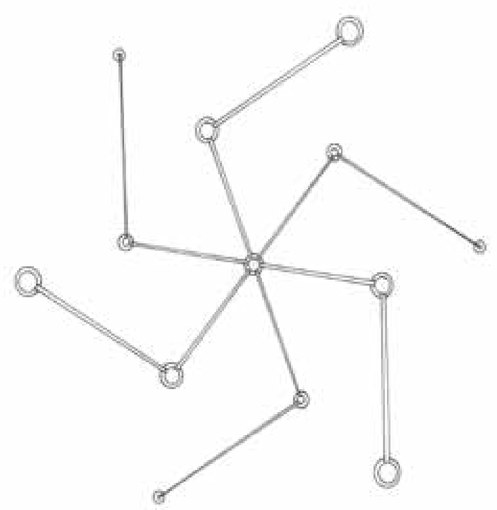
The central icosahedral unit is lined-up with two external units symmetrically, leaving two free spaces where two interrelating units fit. Each structure formed by these five units presents two *arms* or *blades*. Thus, the three perpendicular axes give rise to six *blades*. These axes, with their corresponding *blades*, connect the interior to the exterior obeying a certain sense of rotation.



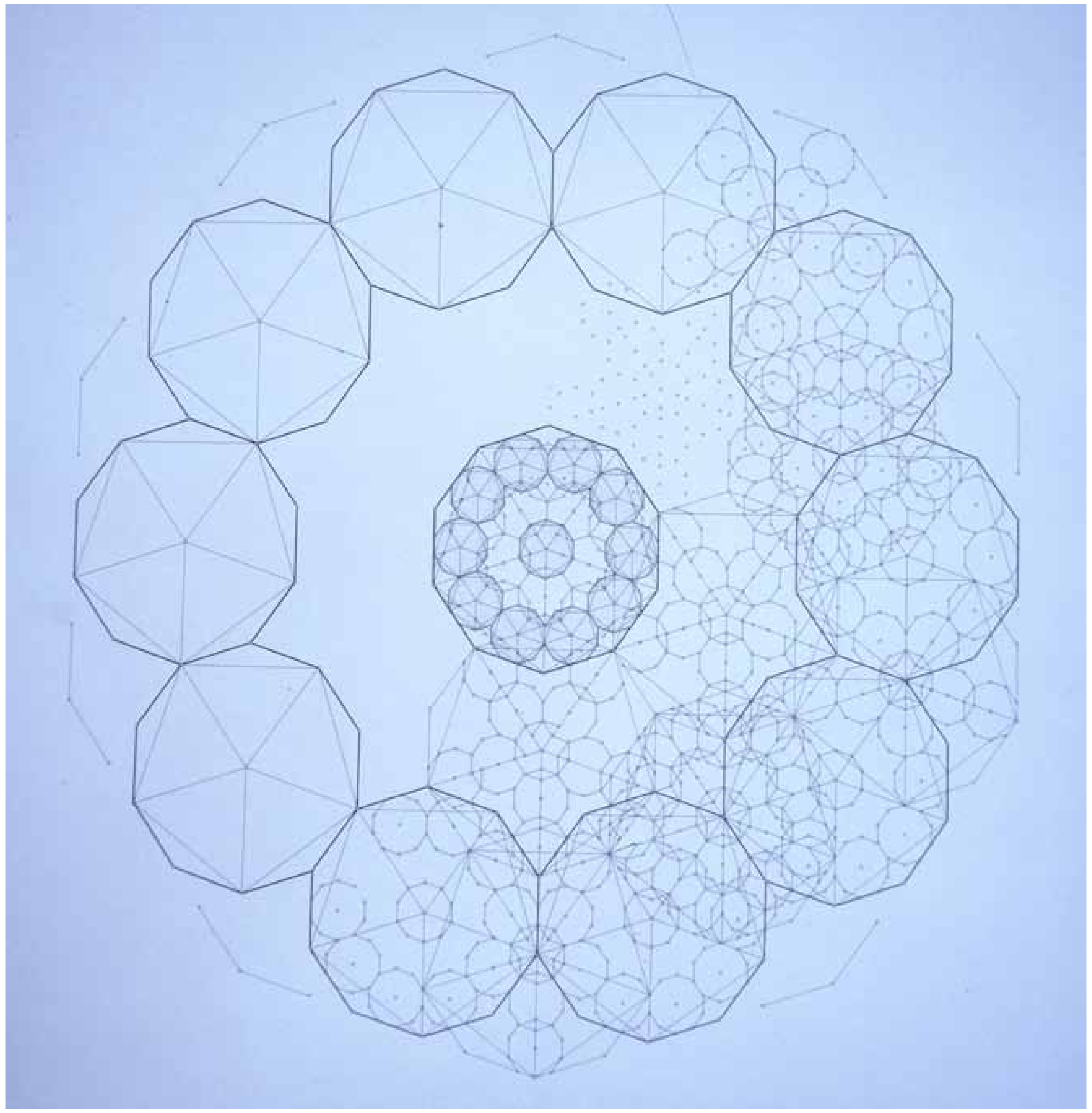
Arrangement of the units when resting on their vertices. In the picture both blades of one of the three axes can be observed.



Arrangement of the units when resting on their edges.



When the faces are arranged horizontally, the three axes together with their six blades arise, projected symmetrically.



In the four-dimensional space, the central icosahedral unit is separated from those thirty units in the periphery of the figure by a distance equal to the length of its edge. This special feature facilitates the formation of a geometric structure whose interior and exterior are connected by means of the interrelating units which are located on the three perpendicular axes that are projected from the central unit.

In the diagram above icosahedral units pertaining to the fifth dimension can also be seen along with those of the fourth.

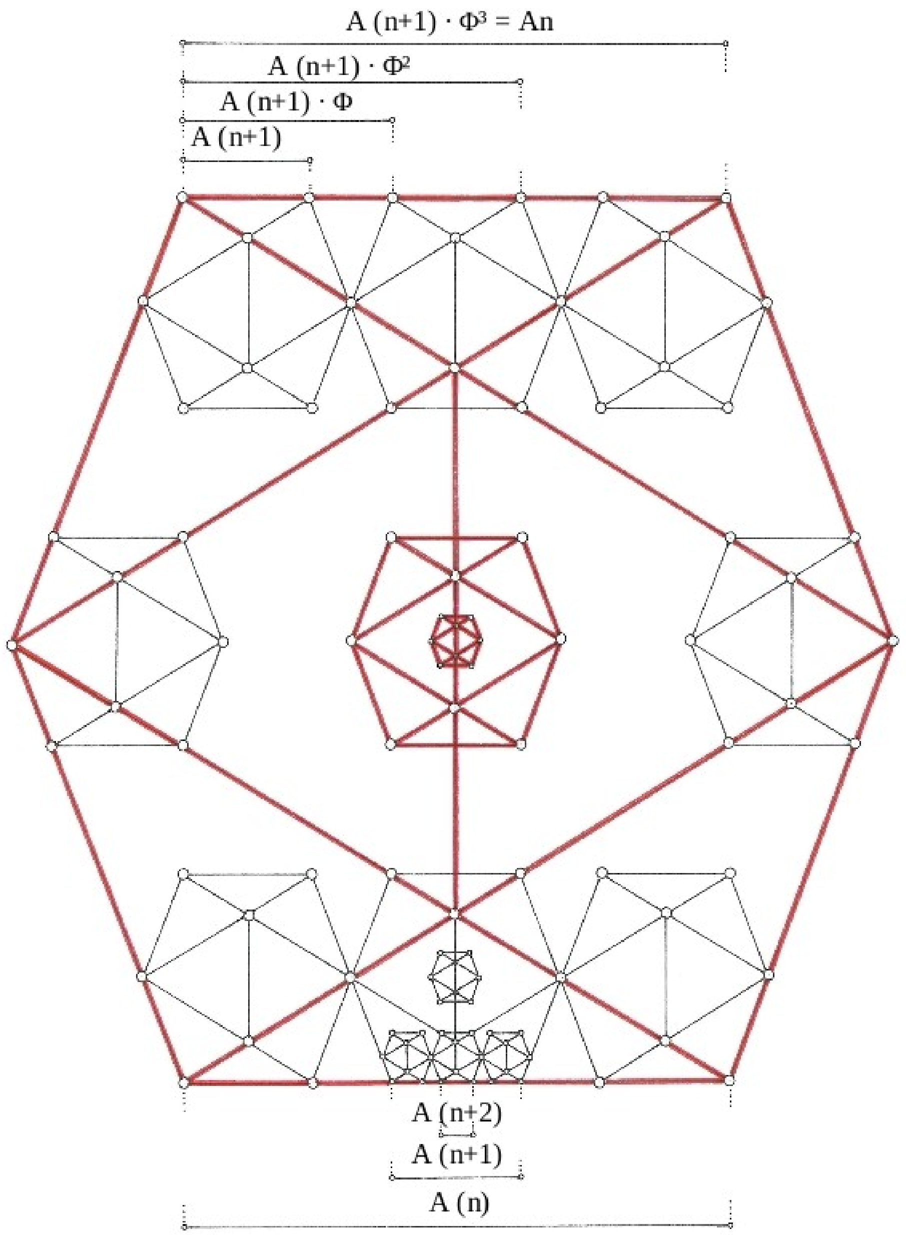
Another feature concerning the icosahedron in the fourth dimension is that the vertices of the five octahedra of the spatial net are located in the center of the squares existing between the central unit and the thirty external units.

The geometry that introduces the nine dimensions of space is fractal: Its starting point are the first three spatial dimensions, to continue then with the other six, by obeying a fractal development and applying the same quantum increase. Thus, quantumly each icosahedral unit contains 49 units of the immediately subsequent dimension.

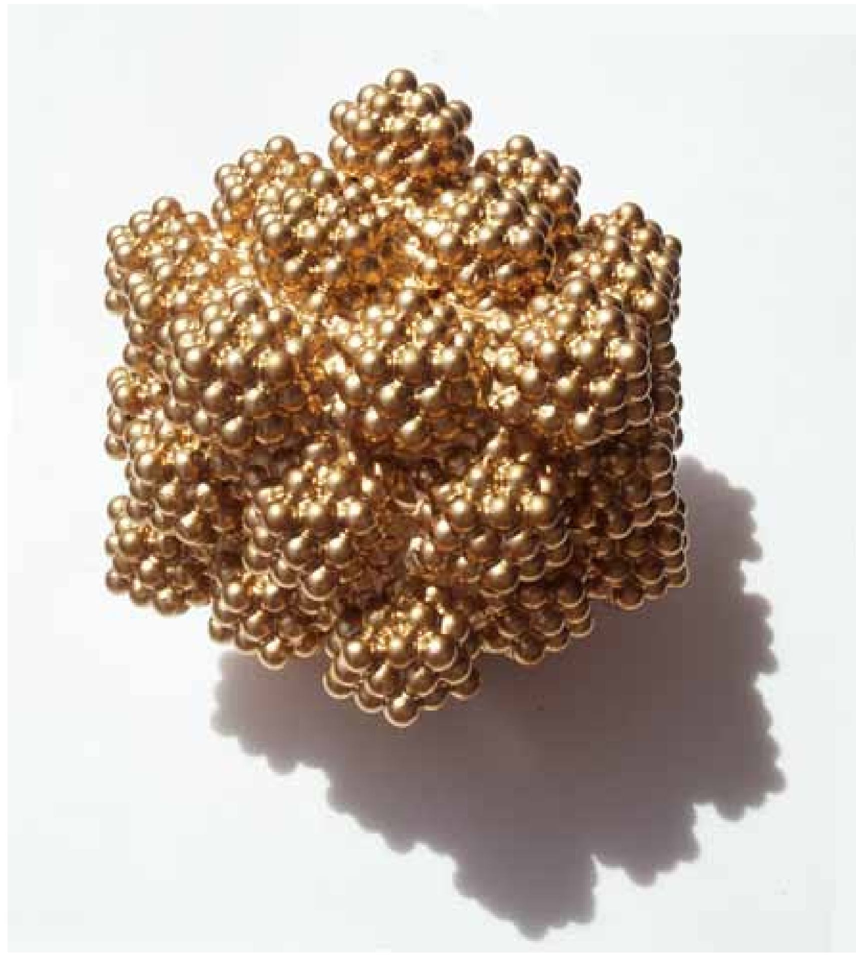
Another characteristic that reflects fractality in this case is that three units of any dimension fit along the edge of the unit pertaining to the immediately preceding dimension.

The length of the edge of a unit pertaining to any dimension is equal to the product of the length of the edge of the unit pertaining to the immediately subsequent dimension and the golden ratio cubed:

Edge[1] (n) = Edge (n+1) · Φ^3



1 **Translator's note:** In the picture below the formula, the letter "A" stands for "arista" (this Spanish word means "edge").



Geometric structure of the unit particle in the fifth dimension. The spheres in contact that can be seen in the picture are inscribed in the icosahedra and are tangent at the halfway point of the icosahedra's edge, so that these spheres maintain the characteristic that the common edges between two adjacent icosahedra of the spatial net are coincident.

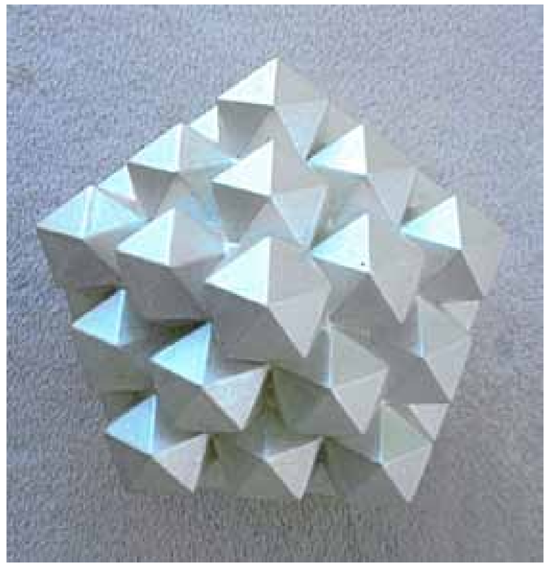
In the fifth dimension the number of units is 49^2 (=2401), as they are visible in the sculpture in the picture above. In subsequent dimensions the quantum increase process is the same.

The limit to the dimensional increase is set by nature, since its states are established in groups of seven. This can be observed in the maximum number of unit particles that is accepted by the elements of the periodic system in their second plasmatic state, which is seven.

As it has been seen previously, when analyzing the dissociation of the hydrogen-1, this element shows corpuscles containing three unit particles each in its plasma-2 state.

Other elements show other variations. Thus, the oxygen has corpuscles containing two unit particles as well as others with seven in its plasma-2 state. Other examples concerning this second plasmatic state can be provided, such as beryllium, which shows some corpuscle with four unit particles, or silicon, which has some corpuscle containing six unit particles.

The fact that the number of unit particles does never surpass the number seven in the plasma-2 state, the first plasmatic state where those particles are already interrelated, is explained by a spatial restriction since the maximum number of unit particles that can be arranged around a nuclear unit particle and on the three symmetry axes is six.



Geometric structure of the unit particle of space.

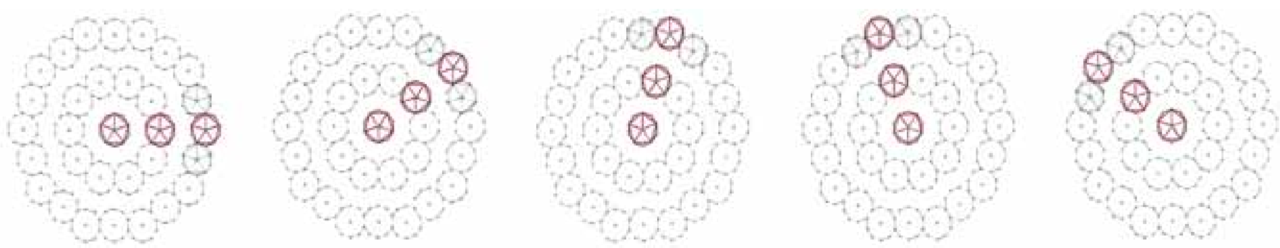
Once we have presented the first two theorems we are proceeding to study the third, but let us first remember that the first theorem refers to the spatial net that exists among the five regular polyhedra ; this net configures the very structure of space or the place in which matter fits and through which energy circulates.
Certain projection properties concerning the fractal similarity in this net are at the base of the second theorem, which proves the existing order in the different geometric dimensions of nature, at the time it studies groups of spaces distributed within others.
The third theorem, which is based on the former two ones, introduces the time concept linked to the motion of the unit particle of space, which, as we are about to see, takes the form of a cyclic and circular trajectory in whose path the unit particle partially intersects itself at a place coincident with a unit pertaining to the fourth dimension.

As it has been seen previously, the unit particle, which is the basis of all elements in the periodic system, shows a slight cyclical translation motion as well as the rotational one around its own vertical axis. This cycle introduces the time concept and its correpondence with the fourth dimension.

Next, we will see how space is transformed by time, which is implied in the geometric cycle. Thus, time linked to the cyclic motion causes a genus-zero figure to turn into another of genus one in topological mathematics.

-. <u>Third Theorem or Theorem of the Cyclical Translation of the Unit Particle</u>:

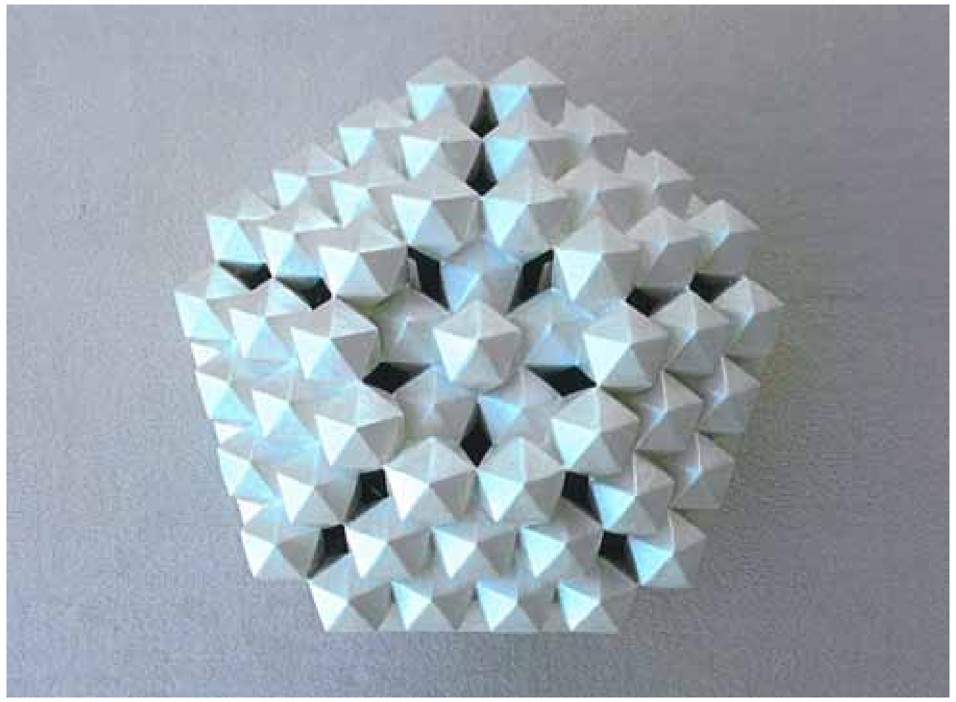
In the spatial net, ten three-dimensional icosahedral units cyclically revolve around a unit of the fourth dimension, which is located in the equatorial periphery of those ten and acts as their super nucleus. At the same time, the four-dimensional units, acting as the nuclei of the three-dimensional units which revolve around the four-



dimensional super nucleus, turn out to be the ten units located in the equatorial periphery of another three-dimensional unit that constitutes the center of the space-time unit particle.

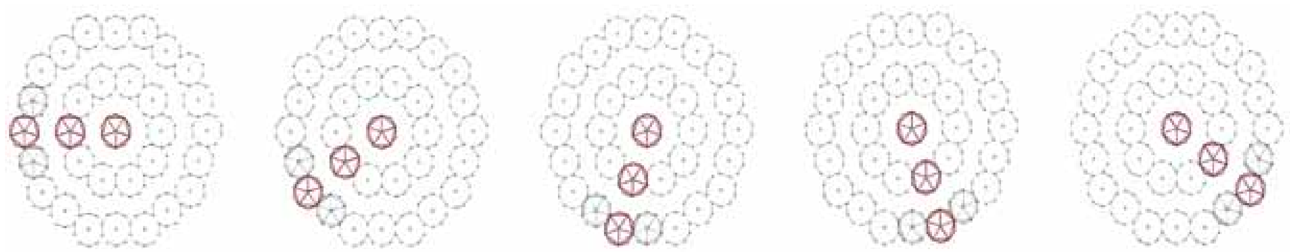
In this theorem it can be observed that a static geometry, corresponding to the unit particle of space, is related to a dynamic geometry, corresponding to the space-time unit particle.

On the assumption that the cyclical translation motion of the geometric structure belonging to the unit particle of space gives rise to the one which belongs to the space-time unit particle, we should say that this latest structure takes a form resulting from the connection of ten three-dimensional particles through a super nucleus constituted by a unit from the fourth dimension.



Geometric structure belonging to the space-time unit particle.

In nature, the origin of the ten filaments the unit particle has lies in the combination of both its rotational and translational motion. In this latest type of motion the particle successively occupies the ten geometric positions that comprise the whole spatial structure of the space-time unit.

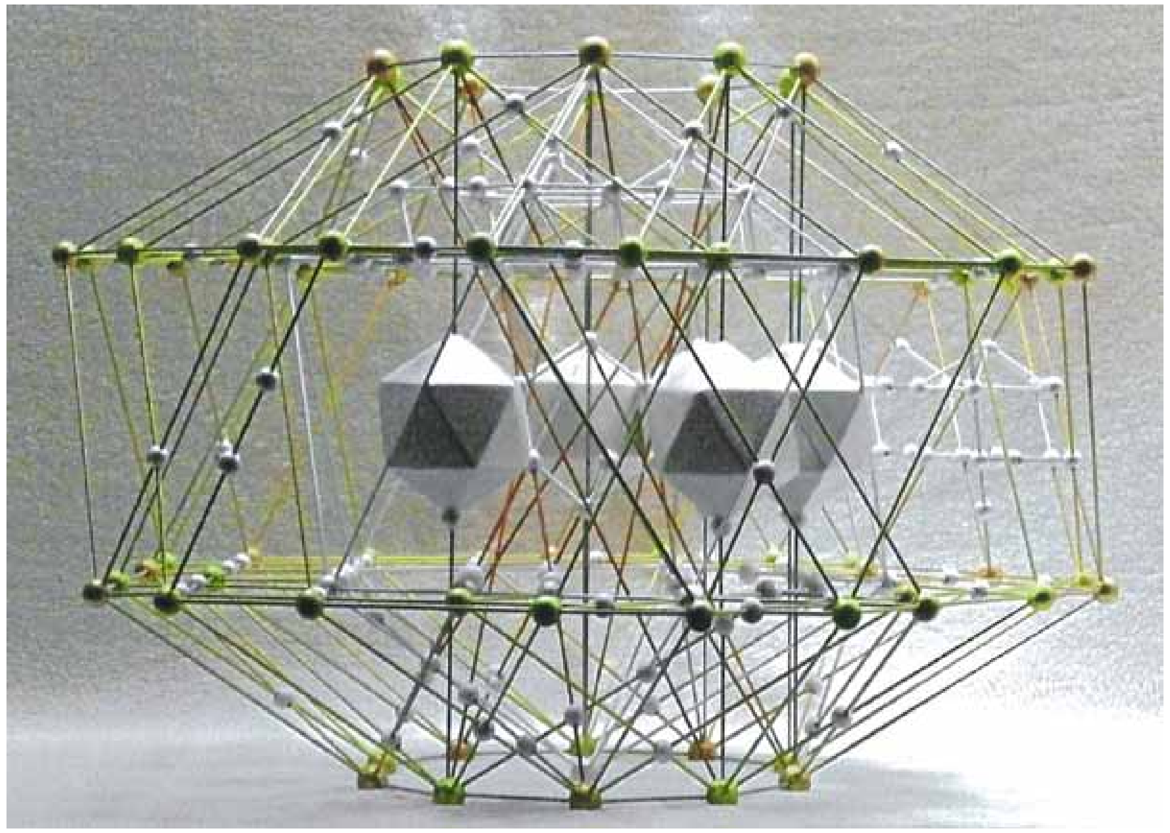


In this analysis of the geometric structure belonging to the space-time unit particle it must be said that its central three-dimensional unit is connected to the ten peripheral three-dimensional units through four-dimensional units.

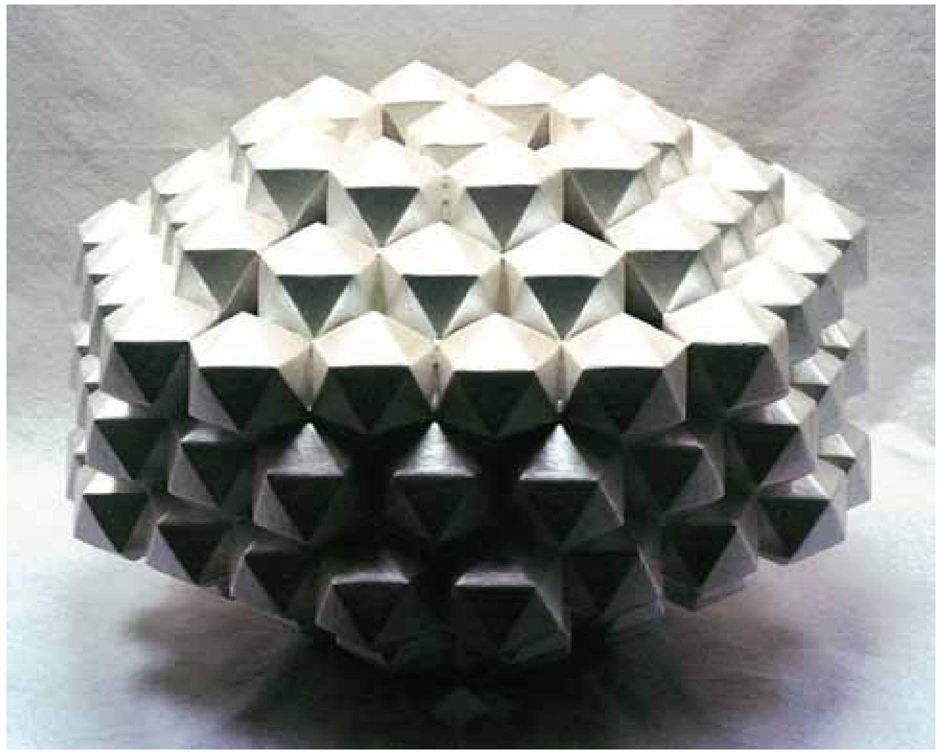
This geometric structure presents twenty four-dimensional units in its equatorial zone. Ten of these units, distributed alternately, connect the ten peripheral three-dimensional units, so that one of those four-dimensional units is shared by two adjacent three-dimensional units.

Thus, this structure exhibits a double connection: On the one hand, between the central three-dimensional unit and the ten external three-dimensional ones. On the other hand, between any two adjacent units of the ten external ones. In both cases the bond is constituted by a shared unit pertaining to the fourth dimension.

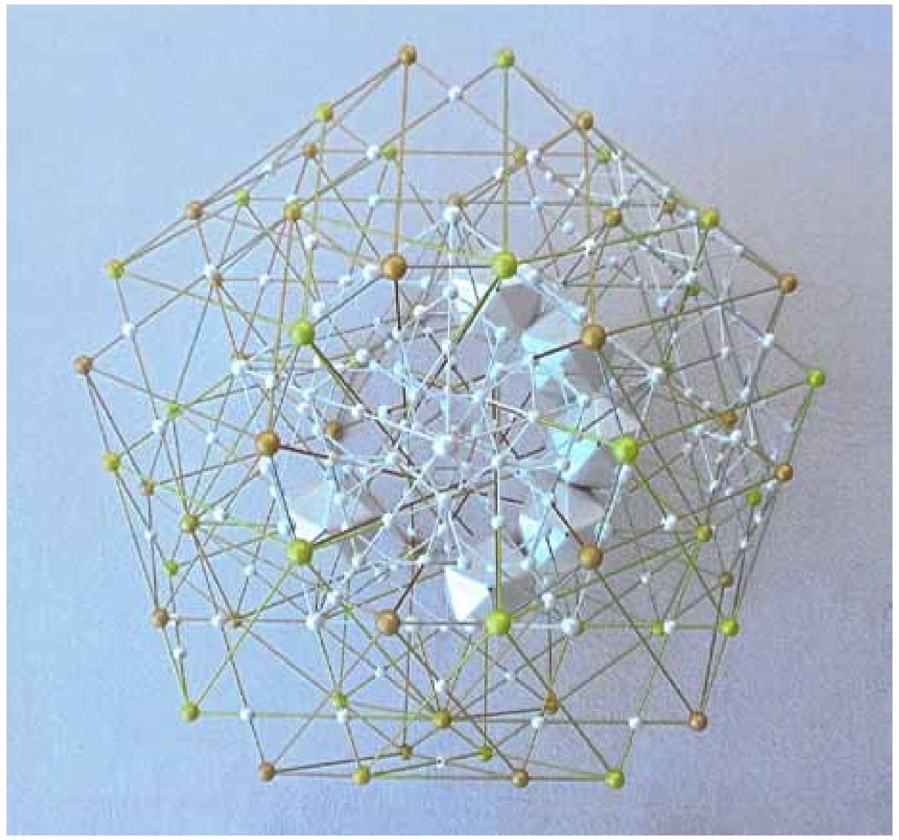
In this way we can conclude that, on one hand, the ten external units, characteristical of a dynamic geometry since they execute a double motion, fit with the central unit, characteristical of a static geometry, and on the other hand with the whole structure belonging to the space-time unit.



Elevation view of the whole figure corresponding to the space-time particle. Both its interior and exterior can be observed. One of the icosahedral units pertaining to the fourth dimension that can be seen in the picture is the super nucleus, while others are the nuclei of the peripheral three-dimensional units and the remaining ones belong to the exterior of the previously mentioned three-dimensional units.



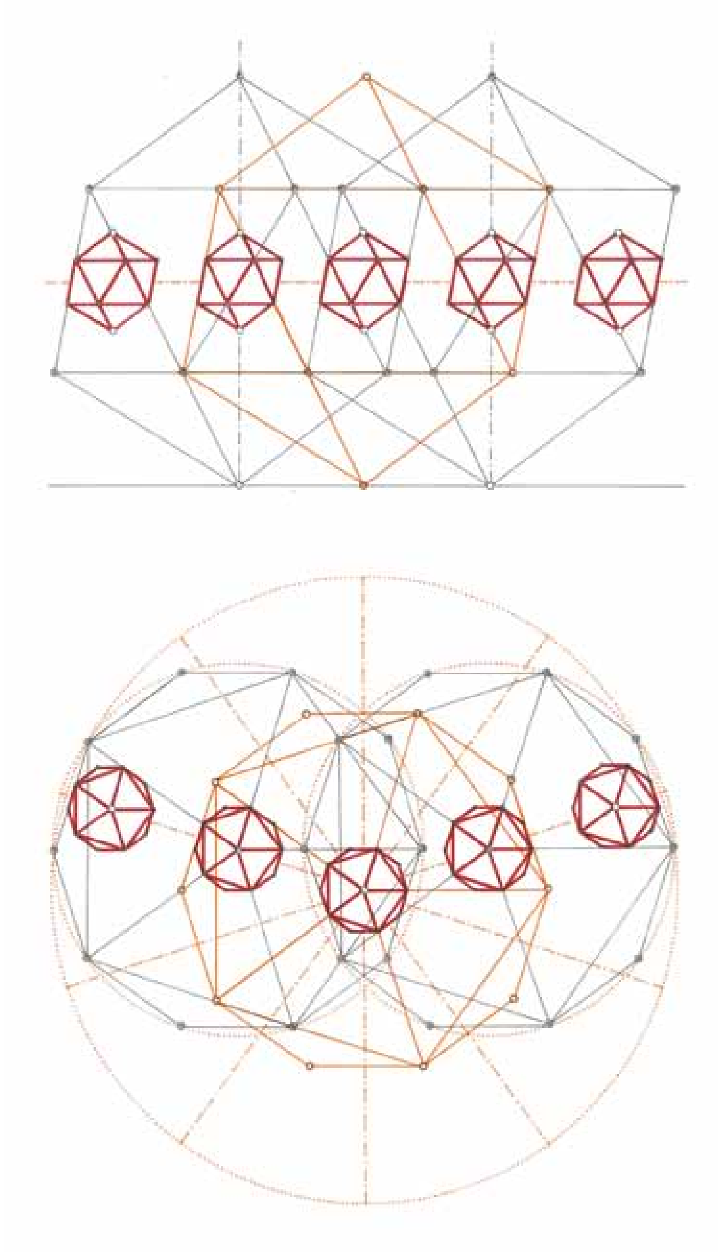
In this exterior view of the structure of the space-time particle it is demonstrated that it forms a closed body where the edges of its four-dimensional units are exactly coincident.



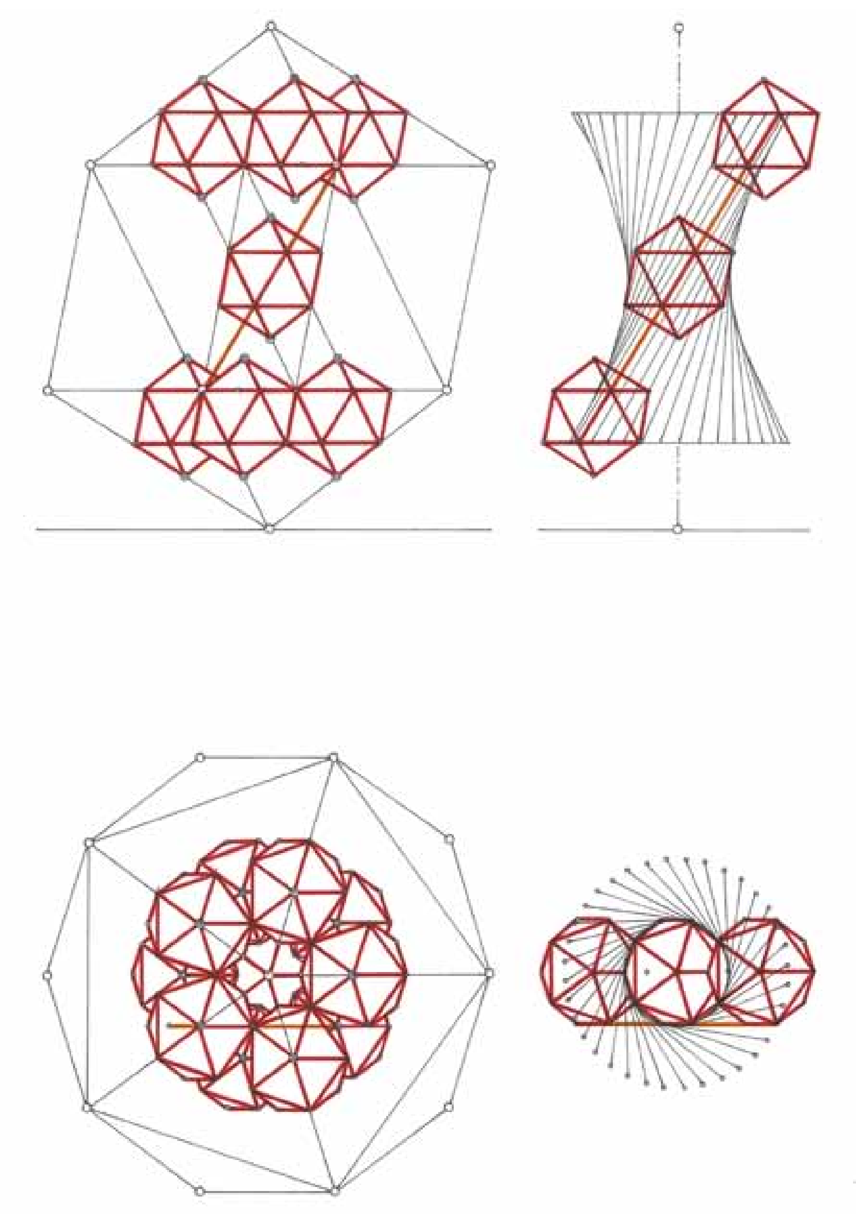
Plan view of both the central three-dimensional unit and the ten external, peripheral ones.

The ten three-dimensional units, which belong to the geometric structure of the space-time unit particle, are connected through a fourth dimension unit. This is the super nucleus, one of the ten four-dimensional units which are located in the equatorial zone of all and each one of the ten three-dimensional units.

This super nucleus, in turn, belongs to the central three-dimensional unit that contains, in its equatorial zone, the ten four-dimensional nuclei that correspond to the ten peripheral three-dimensional units.



Elevation and plan views of two of the ten peripheral three-dimensional units pertaining to the geometric structure of the space-time particle, where their connection through the four-dimensional unit that constitutes the super nucleus can be observed, as well as the central three-dimensional unit.



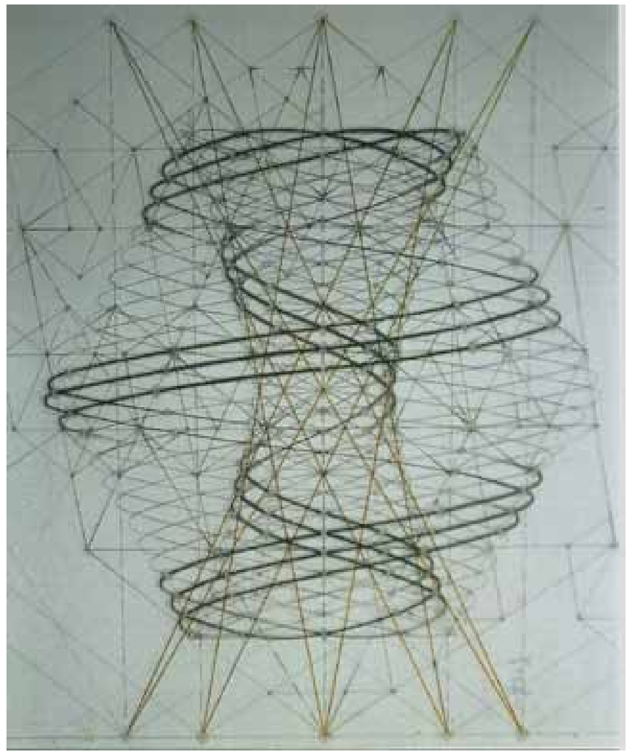
Elevation and plan views of the five four-dimensional units located in the polar zone pertaining to the central three-dimensional unit.

The origin of the dynamic geometry the unit particle exhibits lies in the distribution of the 4D icosahedral units' edges that are contained in the 3D geometric structure. Let us start with the edges of the 4D icosahedral unit, which acts as nucleus. Once these edges are extended, they are coincident with those pertaining to the four-dimensional units, which are located in the polar zone. At the same time, when these edges, belonging to the nuclear 4D icosahedral unit, start rotating they give rise to a ruled surface, the hyperbolic hyperboloid, which constitutes the interior of the toroid, which is the form the unit particle presents in nature.

Thus, the nuclear four-dimensional unit's edges act as superstrings that transmit energy and generate, with their vibrating motion, the interior toroidal surface of the unit particle.

WAVE AND PARTICLE

The unit particle's geometric structure can also present as a wave form.



The unit particle

The ten filaments of the particle depart from its nucleus, carrying out their mission of transmitting the energy generated in the fourth dimension. As they ascend the central column, which has the form of a hyperbolic hyperboloid, they progressively separate, so that there is a difference of 36 degrees between each other when they have reached the superior pole and start to bend in order to continue their run across the exterior surface. Once the filaments have bent and emerged, they continue their progress until reaching the equatorial zone. From this point the filaments keep their run towards the inferior pole, where they bend again to penetrate into the interior of the particle and then ascend until reaching the central nucleus, through which the energy flows into the fourth dimension.

Thus, this form of the unit particle establishes a relationship between the third and the fourth dimensions. When the energy proceeding from the fourth dimension reaches the third it can be observed an increase in the unit particle's size, which is restrained by the limits the third dimension sets. Once these limits are reached a decrease in spatial magnitude follows. This process results in a pulsation between the third and the fourth dimensions, although it should be considered that the energy flow reaches the tenth dimension, since each filament is wrapped in six fractally decreasing spire sets that correspond to other six superior dimensions. Amazingly, the equilibrium is such that the filaments never come into contact.

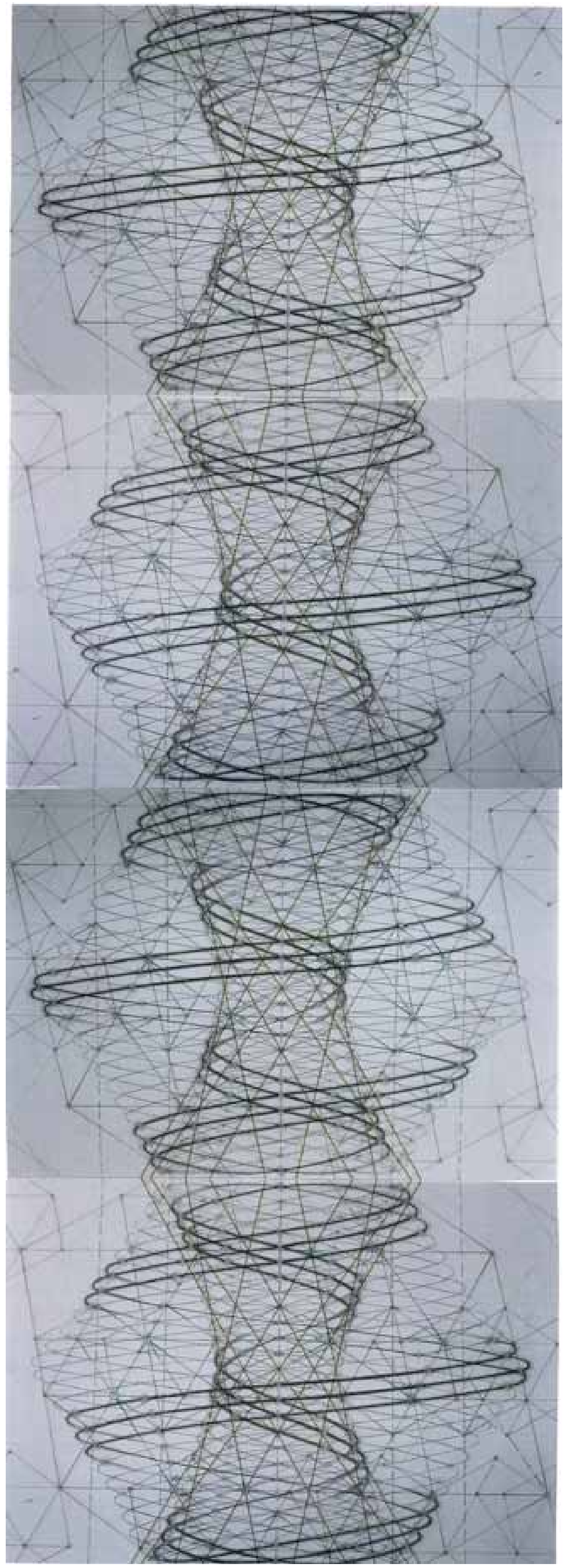
The slightly negative curve of the unit particle's central, internal column may continue along the external surface of two adjacent particles located on both its poles, as it can be seen in the picture on the next page. At the same time and in this case, the exterior surface of the unit particle is an extension of the internal surfaces that belong to its two adjacent particles.

The filaments' symmetry is such that the point in the superior pole where any filament bends is diametrically opposite to the one where it bends in the inferior pole.

Once the filaments reach the poles they have two options, consisting in proceeding across its own particle's toroidal surface or across the two adjacent unit particles that attach to its poles. In the first case we would be referring to the unit particle itself, while in the second case it would be the wave.

In the wave, the ten filaments of any particle and the other ten belonging to its adjacent one join together.

In nature, when a unit particle is under an electric current all its three types of motion are diminished; at the same time, all particles under the influence of the current are arranged in parallel lines. Along each of these lines the energy flow penetrates through the superior depression pertaining to any unit, to then emerge through its inferior vertex and penetrate the adjacent unit and so on.



The wave

GEOMETRY AND THE NATURAL SCIENCES

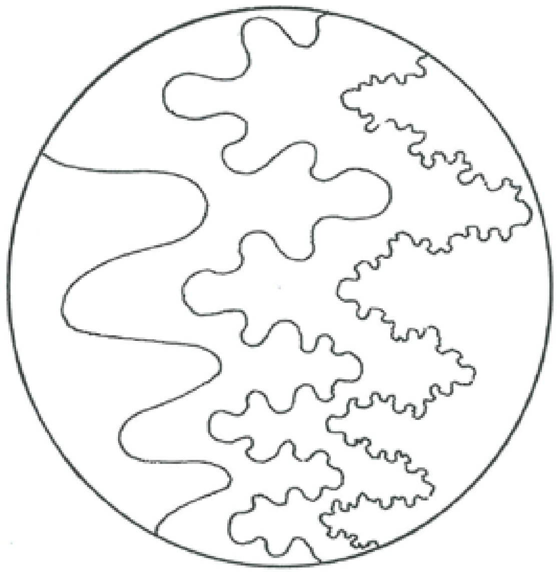
The observation and the study of a great range of forms that are present in nature make us realize that its units obey geometric laws.

Detail of an ammonite's growth

Fractals, which can be found in nature, are deeply related to the different folded dimensions.

In the picture on the left of this paragraph it can be observed the growth lines of an ammonite. These sinuous lines present three different and successive types of order of magnitude that make up this fossil's compound growth. The picture shows two successively more complex orders of incisions on the major undulating suture. This feature can also be observed in the diagram below.

This is just an example of how nature uses fractals when forming its units. This fact can be connected to the second theorem or Theorem of the Fractal Geometric Structures in the Different Dimensions.



Detail of the progressive sequential analysis of three different orders of magnitude in the ammonite's shell.

FRACTALS

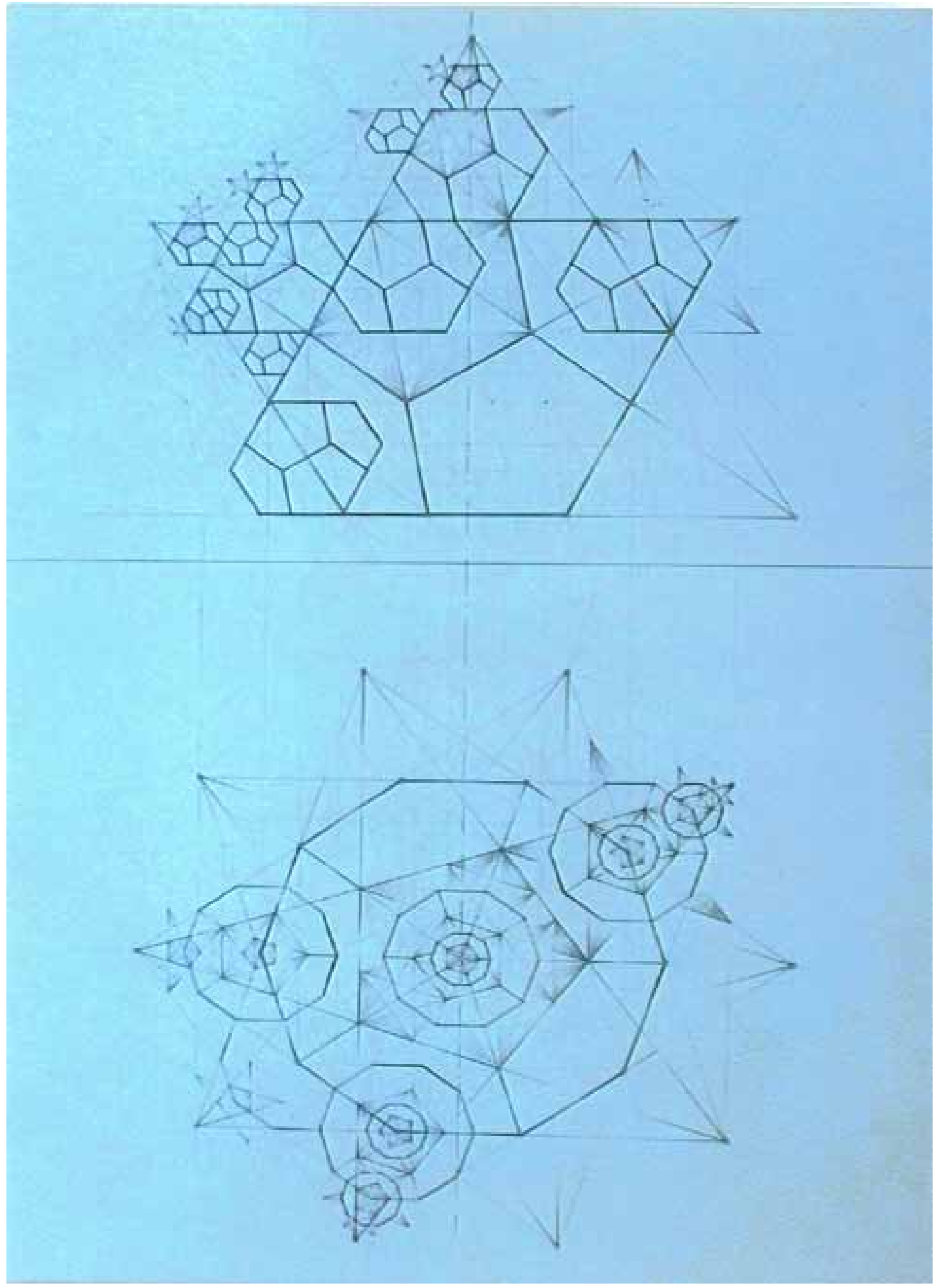
Beautiful fractal order in the Romanesco broccoli

In the immense variety of natural structures and forms, such as the Romanesco broccoli, the ammonite, or the unit particle which is the object of our study, it is certain that fractals and the different and progressive geometric dimensions play a decisive role.

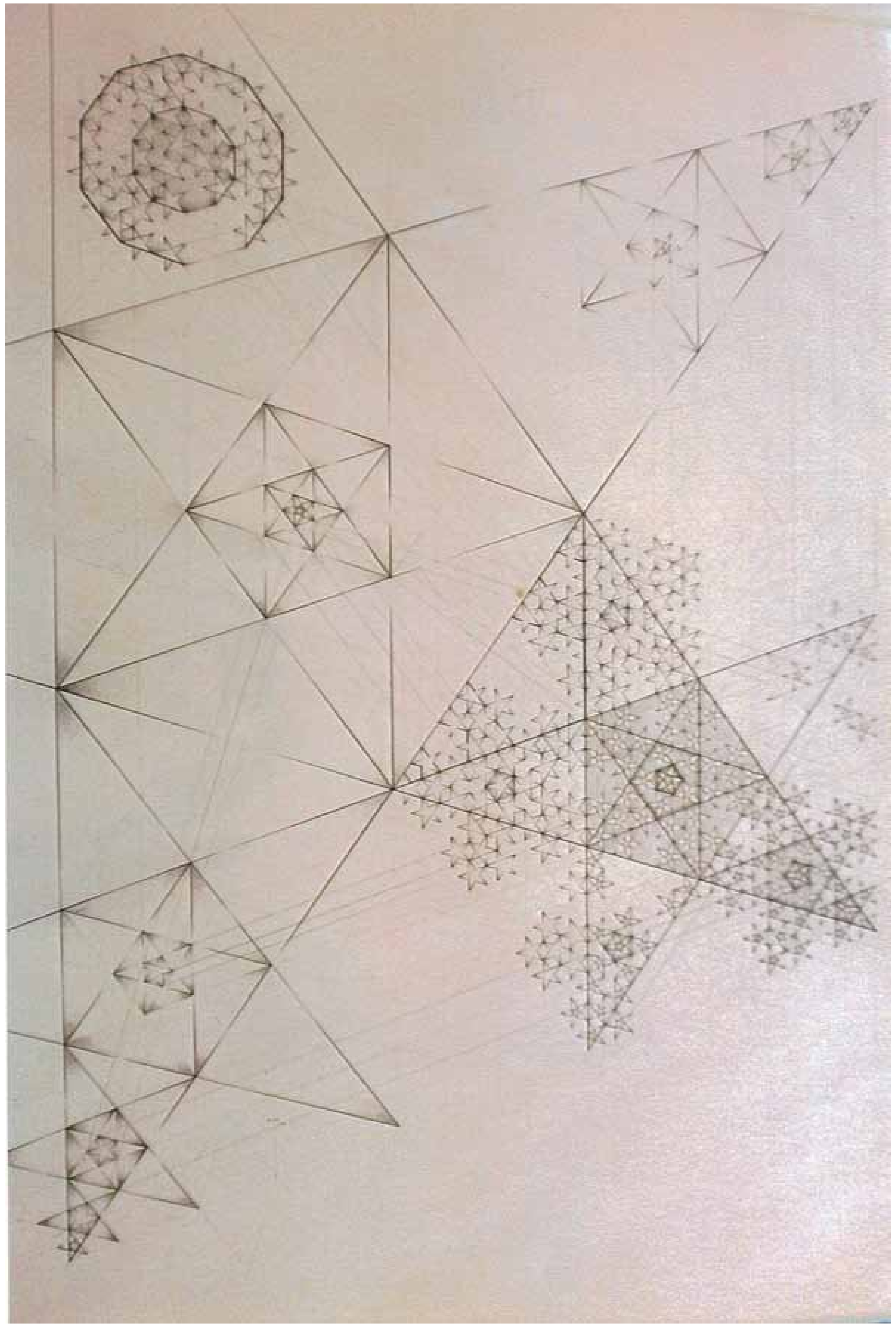
Geometrically, the dodecahedron exhibits a fractal order which is reflected on the following fact: The intersection of its extended edges gives rise to the icosahedron's vertices. At the same time, pentagonal-based pyramids are created, which contain a fractal sequence of dodecahedra. A special characteristic of these dodecahedral bodies, which occur quantumly, is that they do not touch the vertex that constitutes the summit of the pyramid, no matter how many orders of magnitude concerning the figure are considered.

The relation between the edges of any two consecutive dodecahedra is the square of the golden ratio:

$$E(n) = E(n+1) \cdot \Phi^2$$



Elevation and plan views of quantum series of dodecahedra.



In this picture five successive orders of magnitude are shown.

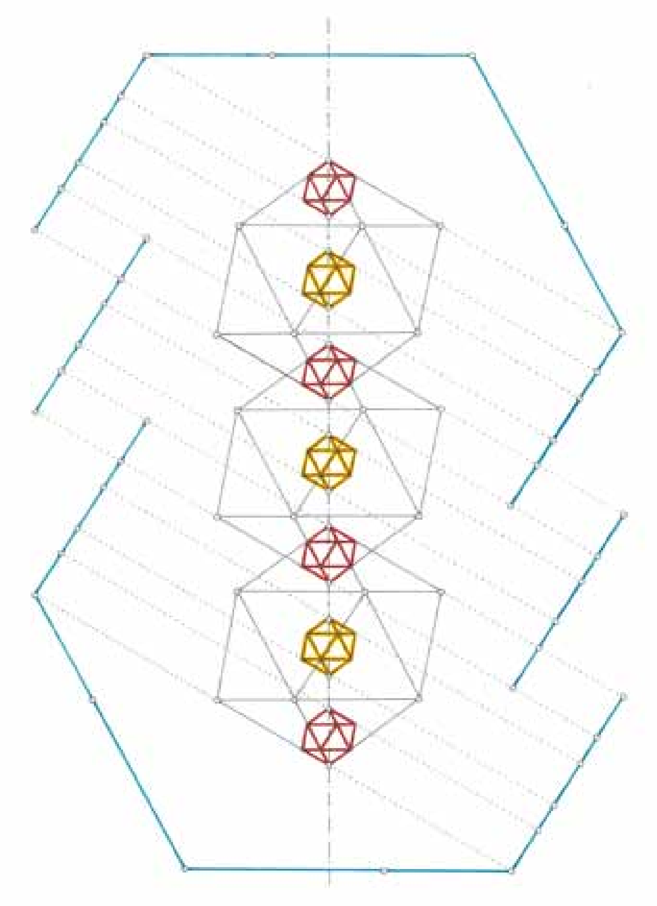
CONNECTION BETWEEN PARTICLES

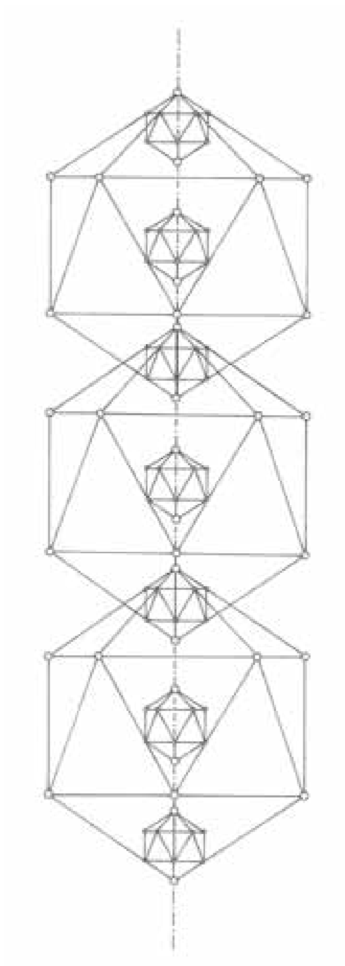
The connection between two 3D icosahedral units is made through a 4D icosahedral unit that is shared by both those three-dimensional units. This four-dimensional unit is located both at the inferior pole of the superior three-dimensional unit and at the superior pole of the inferior three-dimensional unit.

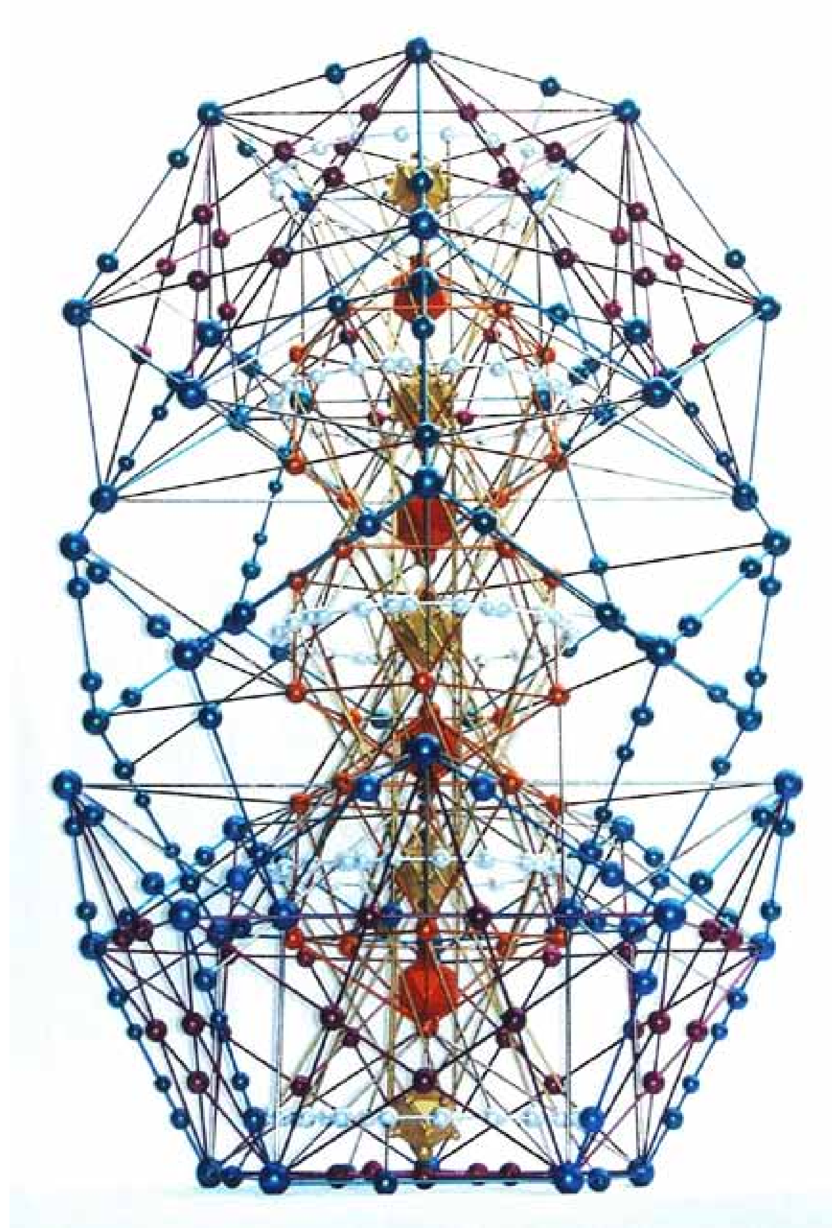
Let us start from the two following relations between edges:
3D icosahedron E=4D icosahedron E· Φ^3
3D dodecahedron E=3D icosahedron E·Φ
Another relation rises from the previous two:
3DdodecahedronE=4D icosahedron E·Φ^4

These relations between edges pertaining to different geometric bodies, as well as the role played by the golden ration can be seen in the picture below.

In this picture it is verified that the parallel lines that are traced according to Thales's Theorem on the dodecahedron's true magnitude edge coincide with the extensions of certain edges pertaining to the four-dimensional icosahedra. These four-dimensional icosahedra are arranged along the vertical axis and located at the nucleus and on the polar vertices of the 3D icosahedral units.
Note that the 4D icosahedral unit that touches both poles of any two adjacent 3D icosahedral units is shared by both and explains their bond.



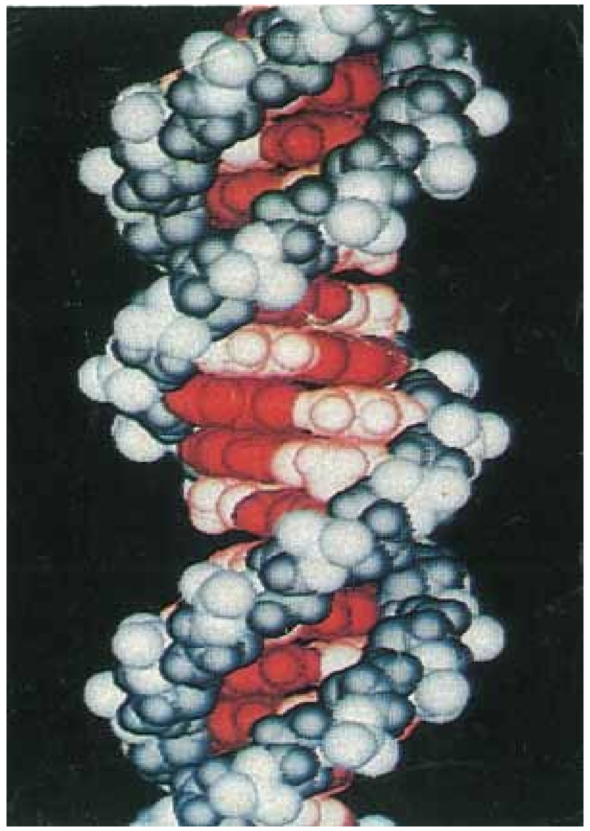




Bonds between icosahedral units along the vertical axis. Note the dodecahedral units which are visible in the structure on the right.

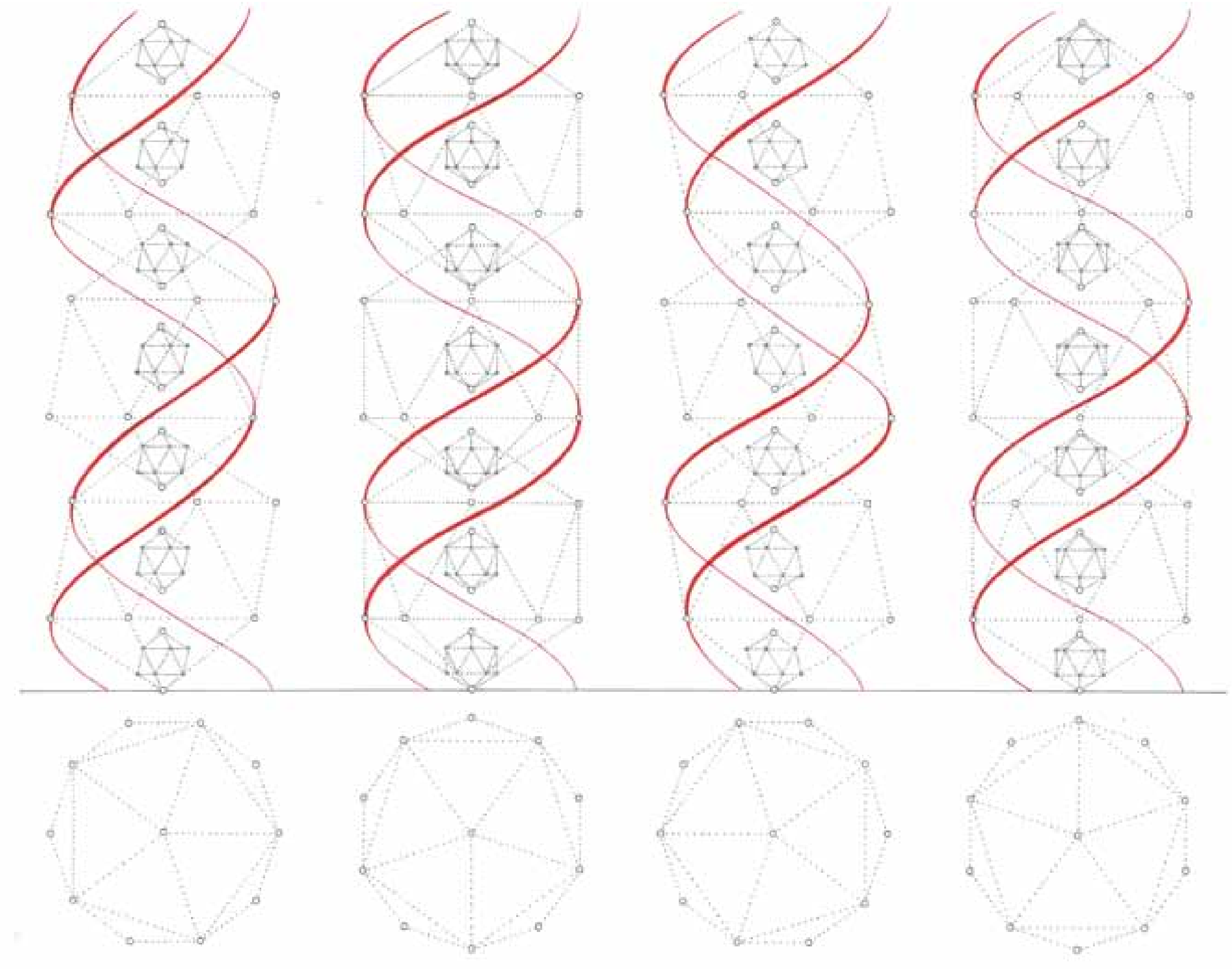
THE DNA DOUBLE-HELIX GEOMETRY

Geometrically, any spire in the DNA double-helix occupies the space of two three-dimensional icosahedra connected through a four-dimensional icosahedral unit, as it can be seen in the picture on the next page.



Any DNA spire along its vertical axis presents an average number of ten base pairs, which arise from the ten four-dimensional icosahedral units that are visible along the bond established between the two three-dimensional icosahedral units.

The twenty amino acids, which are the structural units of the proteins in the double-helix, numerically arise from the twenty positions that the three-dimensional icosahedral structure exhibits when it rotates around its axis. Between any two of its adjacent positions there is a difference of 18 degrees.



Elevation and plan views of the four positions of the three-dimensional icosahedral unit that are defined by its rotational process. Each of these positions is determined by a 72 degrees sector. The 360 degrees cycle is comprised of five different 72 degrees sectors.

The twisting of the sugar-phosphate backbones of double-helical DNA derives from the three-dimensional icosahedral unit's rotation, which is reflected in the picture above. This motion makes its major and minor grooves flexible, affecting the tilt of the base pairs.

SPECIAL NUMBERS IN NATURE

THE NUMBERS 3 AND 18

There is an interrelation between the exact sciences and the natural sciences, on both the microcosmic and the macrocosmic levels.

With regard to this, it must be remarked the importance of the numbers 3 and 18, as well as their interrelation.

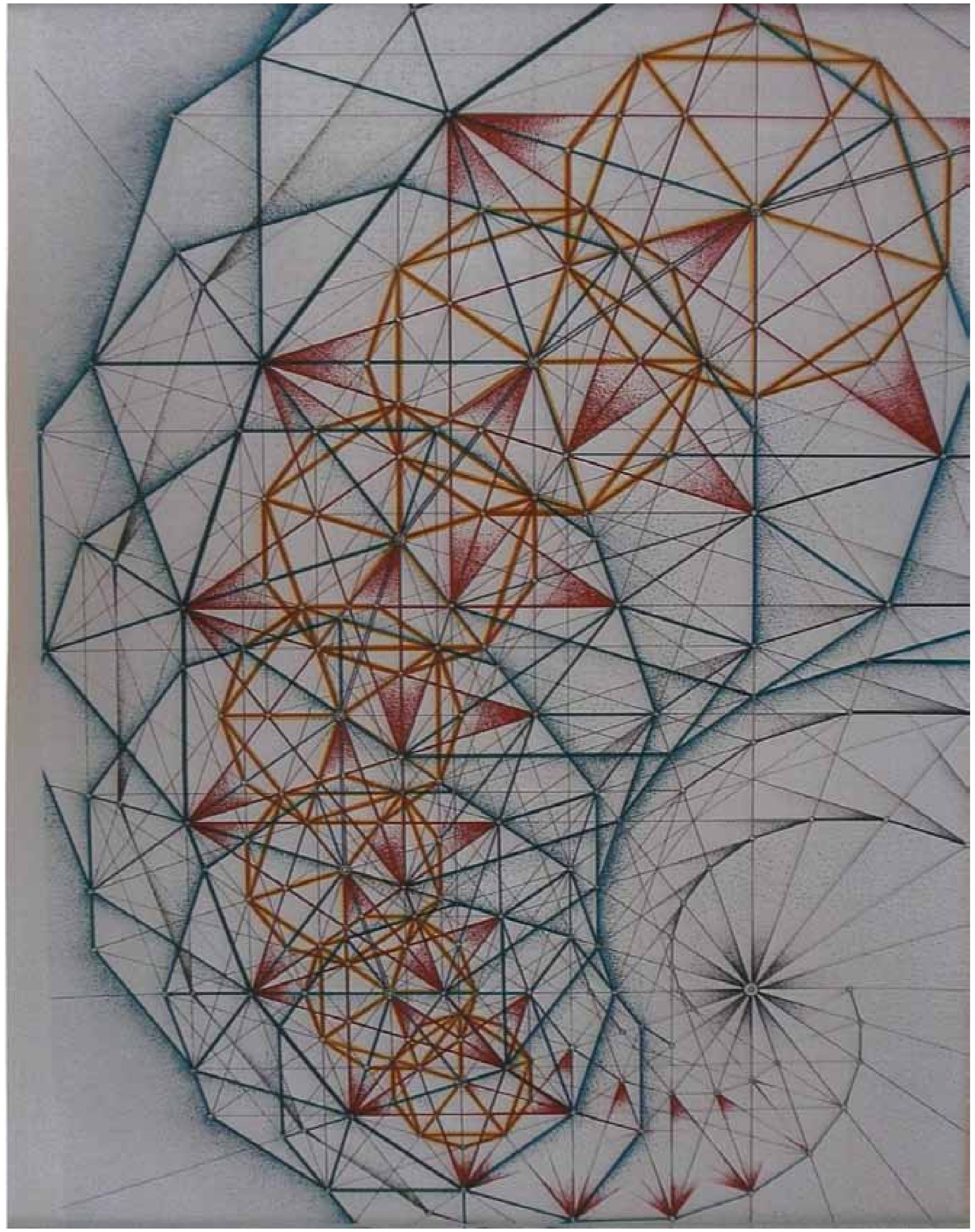
For example, eighteen is the number of unit particles that comprise the hydrogen-1,as well as it is the quantum increase which gives rise to the elements of the periodic system.

Note that the picture on the right shows a geometric figure consisting in a spatial net which is built on the basis of successive 18 degrees turns. Focusing on the upward/downward spiral which is visible, we must say that it is made up of the orthogonal projections of both the dodecahedral units and their corresponding icosahedral ones, along with the edges pertaining to the hexahedral units that maintain a correlation with both previous types of units. The construction of this figure on the basis of the successive 18º variation establishes the constitution of triplets, where the ratio between the first units belonging to each triplet is equal to the golden number. Thus, the fourth unit is precisely the one that starts a new triplet.

The DNA double helix is characterized by these sets of three units: Each codon, which encodes an amino acid, consists of three nucleotides.

Another example is provided by the unit particle where one of its two arms comprises a triplet consisting of three vibrating filaments.

Similarly, three are the four-dimensional icosahedral units that are located on the edges pertaining to the three-dimensional icosahedron.

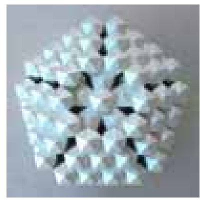


In this figure the edges pertaining to the first and the fourth units are in the golden ratio. The ratio of the first unit's edge to the tenth unit's edge is Φ^3, which is the same ratio existing between the icosahedral edges of two adjacent dimensions.

THE NUMBERS 5, 10 AND 20

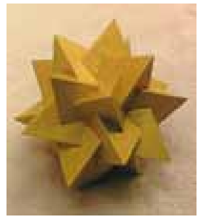
A fifth order angular symmetry can be seen in the three-dimensional icosahedron.

The four-dimensional icosahedron comprises 42 external units, ten of which are located in its equatorial zone. The whole figure constitutes the geometric structure of the unit particle of space.



In the space-time unit particle, which is the result of the cyclic motion described by the unit particle of space, there are 20 external units in its equatorial zone.

Nature keeps a memory of its geometric origins in its forms:



Neon, argon, krypton, xenon and radon, all of them noble gases, share in their nuclei the geometric structure which arises from the intersection of the five tetrahedra and comprises six unit particles located on each of their vertices, resulting a total of 120 units.

The hand is composed of 5 fingers. Both hands have ten. Finally, our four limbs show a total of 20 fingers and toes.

The vegetable kingdom shows a wide range of five petals flowers.

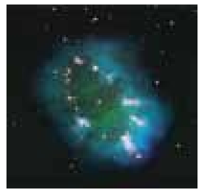
Sea urchin, with its external and starred pentagons.

Pentaradial symmetry in a blastoid echinoderm fossil.

Presence of the numbers 5 and 10 in the internal structure of a sea urchin.

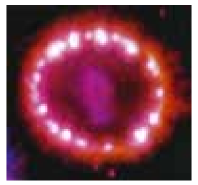
Sea urchin shell, where the five ambulacra can be clearly seen.

Equatorial cut of an apple, where the five cavities for its seeds and the surrounding ten filaments are observable.

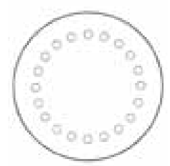


Bright outer halo of a planetary nebula where ten light-emitting areas can be seen.

Ring of dark matter in the galaxy cluster CI 0024+17, where a unit at its nucleus is surrounded by ten other external units.



The SN1987A supernova, in the Large Magellanic Cloud, with its bright ring that comprises twenty units.



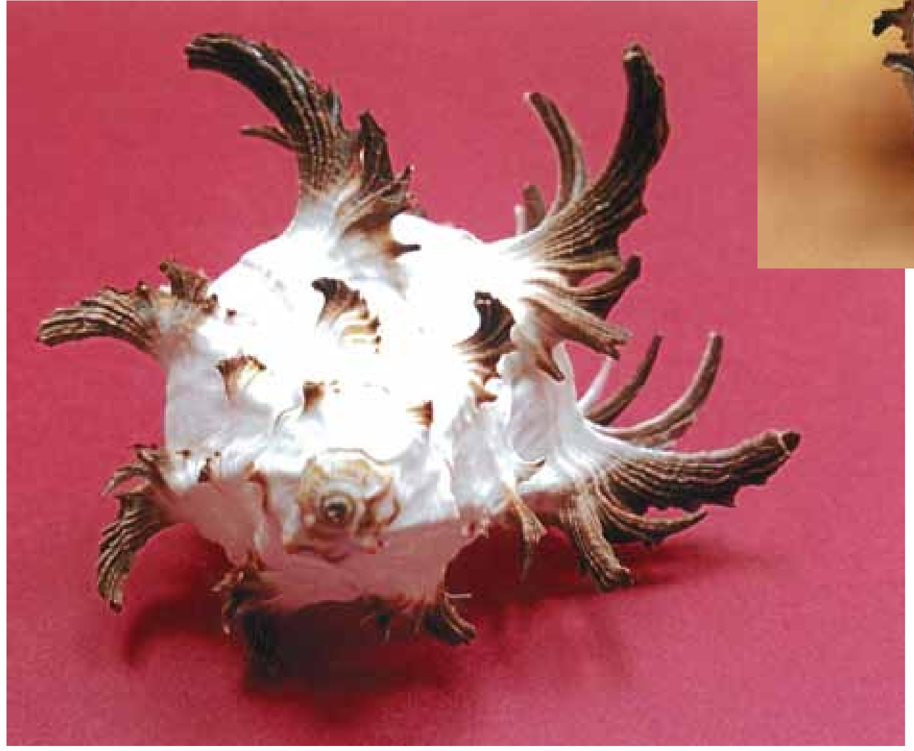
As twenty are the different positions the icosahedral unit exhibits in its revolving cycle, the twenty amino acids can be arranged in five sectoral groups, according to some similar chemical properties, so that they may form a ring. The different sectors are linked together by the structure -CONH-.

Sand dollar test that shows twenty radial arms. The inferior ten are displayed separately, and the other ten are inscribed in the superior semicircle . Note the five-pointed star pattern on its surface.

SEASHELL GROWTH

The structure of seashells is often determined by a conic helix. Their growth depends on two elements, the longitudinal axis and its perpendicular circular plane. A great range of forms exists in nature according to the dominant proportion in these two elements.

Some forms exhibit a growth which can be defined by a succession of quantum stages.



While some show a completely smooth surface, there are others that have a fluted pattern which may remind us of the filaments of the basic particle.

A memory of the filaments of the unit particle is visible in most seashells.

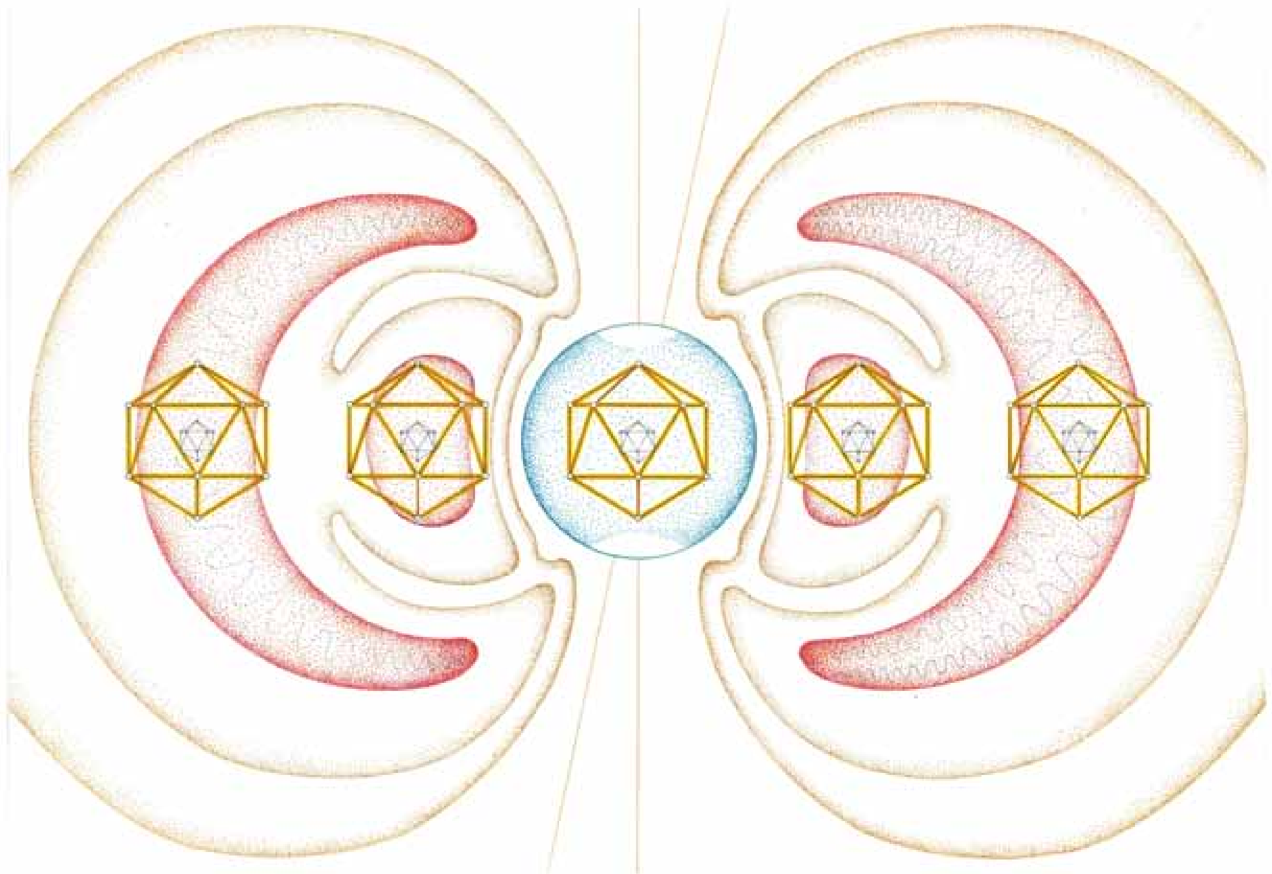
While in some cases the seashell growth is based on the longitudinal axis, in others the circular plane perpendicular to the mentioned axis is dominant.

In some seashells a wave pattern may occur. This can be expressed in a series of nubs or color spots.

GEOMETRIC ORIGIN OF THE EARTH'S MAGNETOSPHERE

The origin of the magnetosphere lies in a cyclic geometric structure.

The curved magnetic field lines of both Van Allen radiation belts can be explained on the basis of the unit particle of space-time. As we are about to see, it is revealing and logical the fact consisting in that protons form the inner belt and electrons form the outer belt.

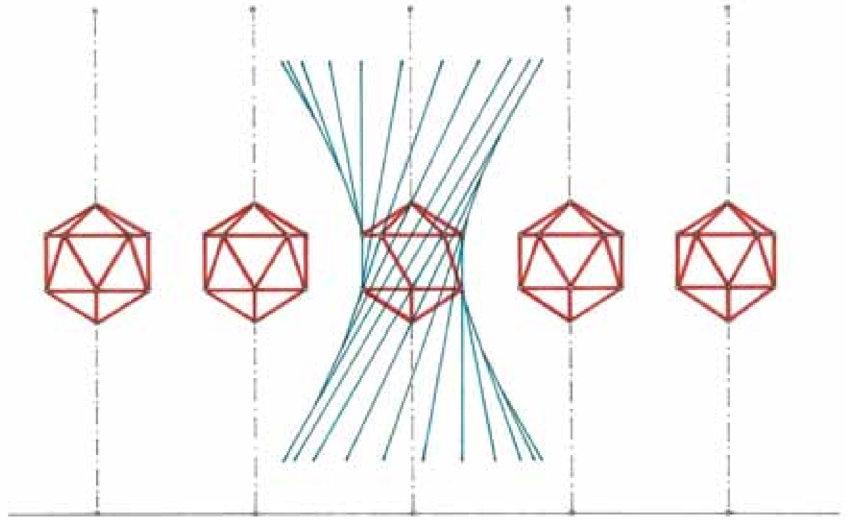


In a microcosmic scale the unit particle of space has a slight cyclic motion that gives rise to the geometric structure belonging to the unit particle of space-time; similarly, in a macrocosmic scale such motion gives birth to the two Van Allen radiation belts. Specifically, the inner radiation belt, which is made up of protons, is originated by the cyclic shift of the space unit particle's[2] nucleus, which is positively charged, while the outer belt, formed by electrons, results from the negatively charged four-dimensional units which are distributed along the periphery of the revolving three-dimensional particle.

The swinging derived from the difference between Earth's geographic axis and its magnetic axis results in a substantial closeness of the outer radiation belt to the poles.

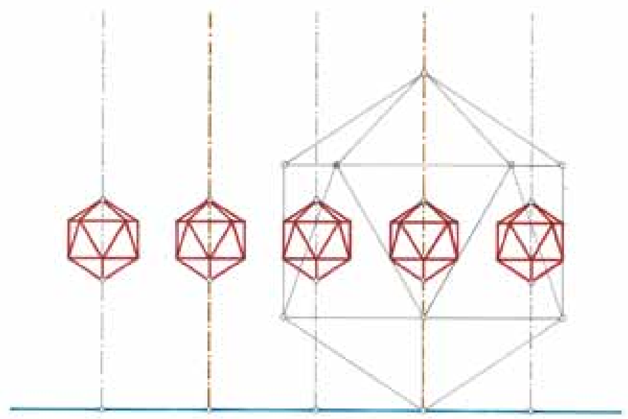
The amount of radiation existing in both belts is considerably reduced as soon as we move towards their outer regions.

2 TN: The unprecedented term in Spanish (partícula unidad del espacio) has been translated in two ways, namely, “unit particle of space” and “space unit particle”. The second appears here for the first time.



The three-dimensional icosahedral unit's lateral edge coincides with the edge pertaining to the four-dimensional unit located in the center of the toroid, and gives rise to the hyperbolic hyperboloid in the interior of the toroid on the basis of the cyclic motion of its three-dimensional geometric body.

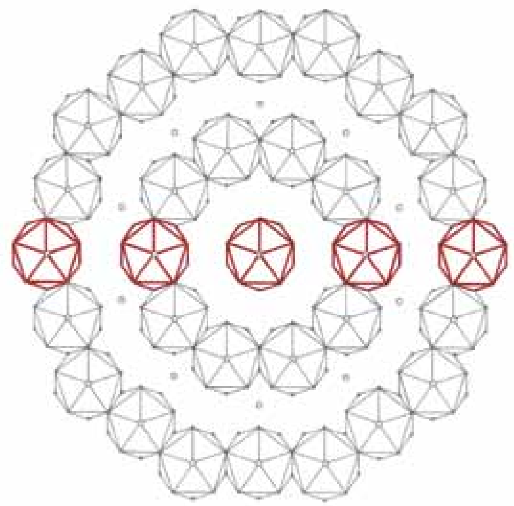
On a macrocosmic scale, as well as on a microcosmic level, the space-time particle[3] which emerges from the spatial net is made up of the ten positions the icosahedral unit has in the third dimension when rotating and cyclically shifting, as it has been seen previously.



Time establishes a mathematical relation between the third and the fourth dimensions. Ten are the positions the three-dimensional icosahedral unit occupies along its cyclic path.

Four-dimensional units can be found in the intersections among these positions.

At the same time, all ten positions occupied by the three-dimensional unit share a four-dimensional unit which is located in the center and acts connecting the whole structure of the space-time particle.



The space-time particle's equatorial perimeter consists of twenty four-dimensional units, as it can be seen on this plan view.

3 TN: As with the “partícula unidad del espacio”, the other unprecendented term in Spanish (partícula unidad del espacio-tiempo) has been translated in two ways, namely, “unit particle of space-time” and “space-time particle”. The second appears here for the first time.

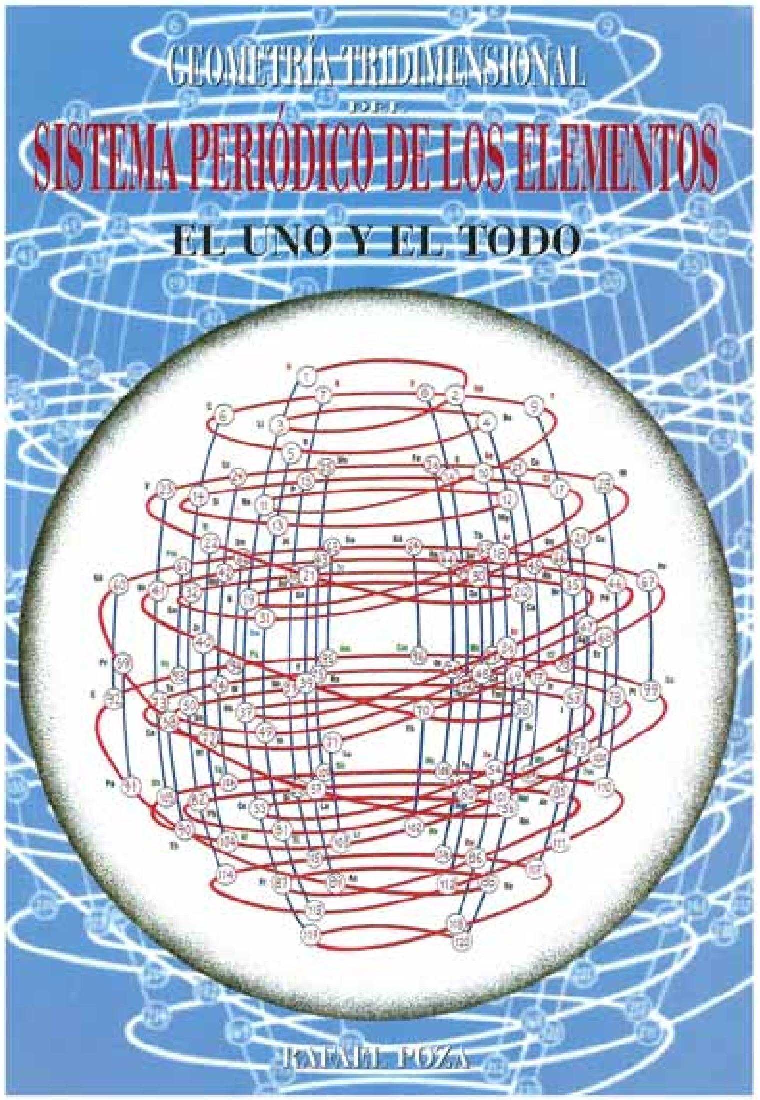
THE PERIODIC SYSTEM OF THE ELEMENTS

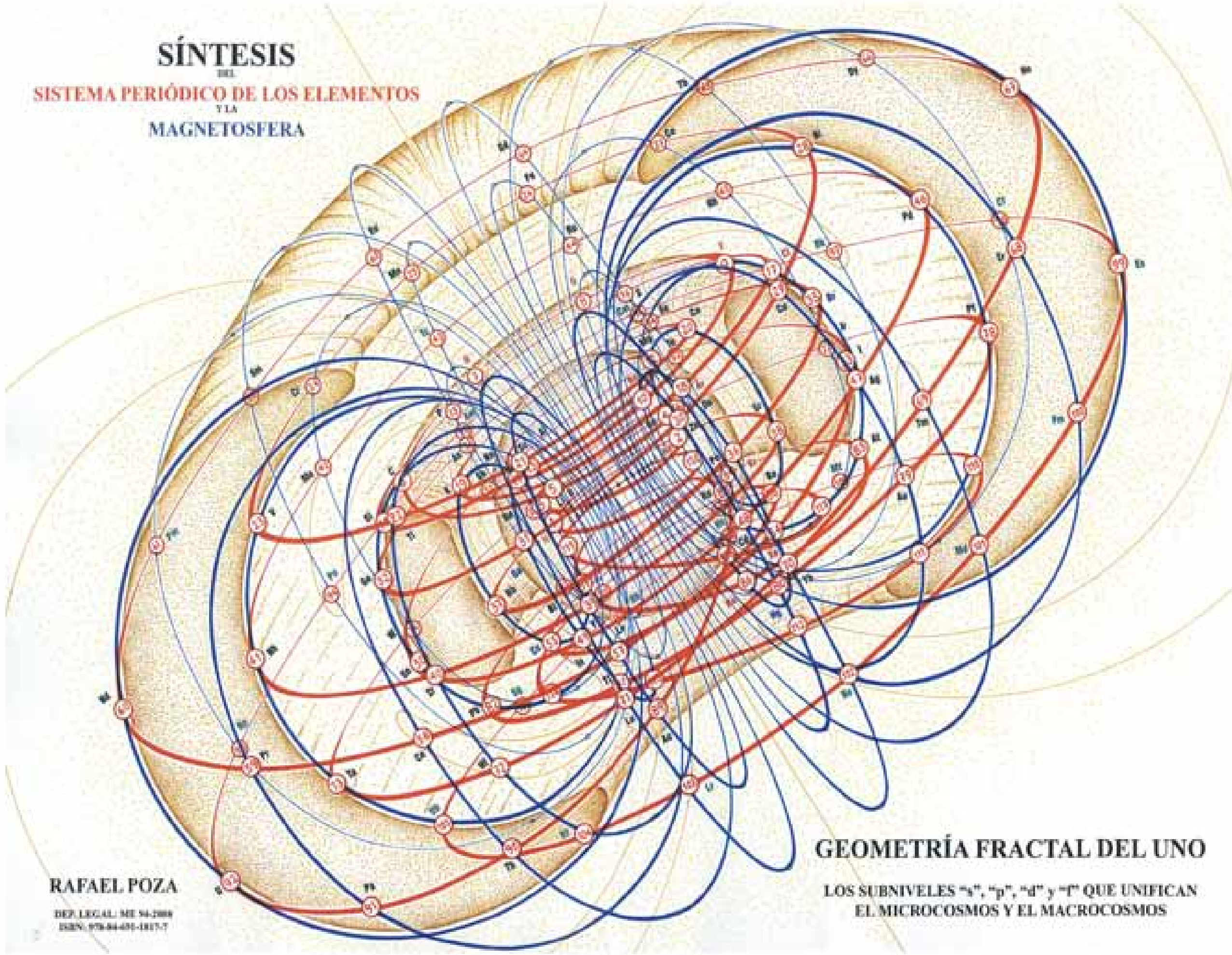
The law of the periodic table of elements is even much more beautiful and enlightening when it is observed in the three-dimensional space.

The branch of mathematics known as topology enables us to turn the conventional columns (groups) of the periodic table into meridians and present the periods, as well as the energy shells and subshells, along a continuous helix.

This alternative three-dimensional form of the periodic table makes possible the inclusion of lanthanides and actinides, in a natural way.

According to this alternative table, each element is part of a wholeness, and it can be seen a true quantum energy growth. Its helical trajectory runs from the center towards the exterior, and then it turns towards the center and so on, passing by the different energy shells and their corresponding subshells.





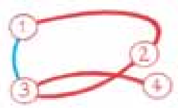
The picture above shows us another version of the three-dimensional representation of the periodic table, that is, in this case, adapted to the magnetosphere and its radiation belts. In this picture it can be seen both the directrix helix that provides the backbone of the periodic table, and the four surfaces that contain the four toroidal meridians.

Incoming energy from an upper dimension initially materializes into hydrogen in the third dimension and then it continues flowing because of quantum energy pulsations whose origin lies at the four-dimensional nucleus of the toroidal structure. With each of these pulsations a new position appears, geometrically, on the helix that cuts the meridians that are contained in the surfaces of the four toroids. A new element occupies each of these positions. S, p , d and f subshells are located on those four meridians that give rise, with their motion, to the four toroidal surfaces.

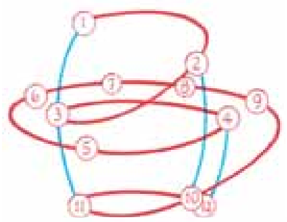
SYMMETRY AND GROWTH IN THE PERIODIC SYSTEM OF THE ELEMENTS.

The progressive addition of the different chemical elements gives as a result the units that make up a wholeness represented by the helical structure . The appearance of a pulsation in space, originated at the nucleus of this helical structure, explains the connection between both its interior and exterior.

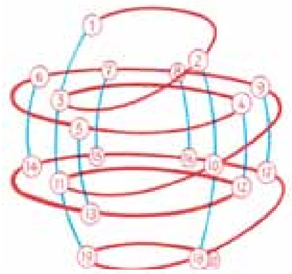
FIRST SYMMETRY: Helium completes the K-shell, when the s-subshell, that began to be occupied with hydrogen, is comp-pletely filled up.



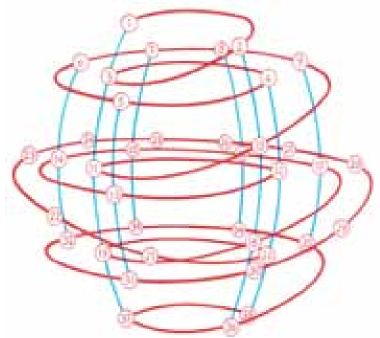
SECOND SYMMETRY: Lithium begins the s-subshell of the second period, that is then completely filled up with beryllium.



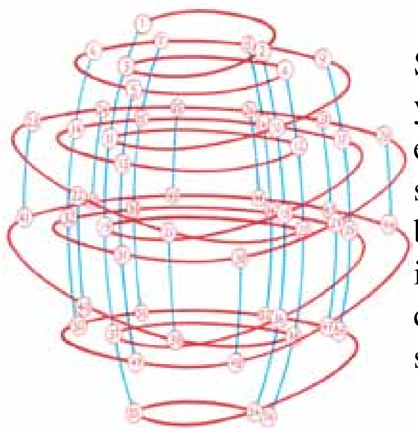
THIRD SYMMETRY: Boron begins to occupy the p-subshell that is then fully filled up with neon. With sodium, after the curve has moved to the inner region, the 3s shell begins to be occupied. Then it is completely filled up with magnesium.



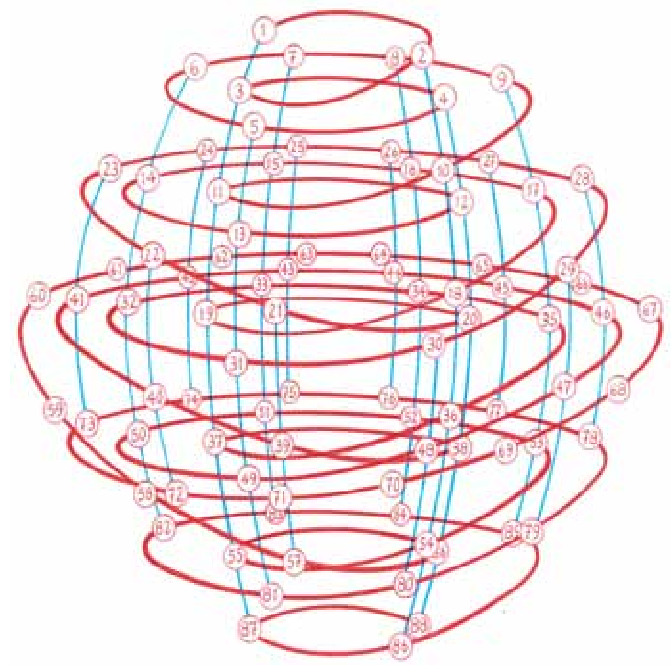
FOURTH SYMMETRY: The 3p shell begins to be occupied with aluminium. Argon fills up 3p. Potassium begins to fill the new s-subshell. Calcium completes the fourth symmetry after filling up 4s.



FIFTH SYMMETRY: The trajectory of the curve moves toward the external orbital of the third shell with scandium, when the d-subshell begins to be occupied, and then this subshell is fully occupied in copper. Zinc gets the electron back that had been lost in s with Cu. Gallium begins to fill the 4p shell. This 4p shell is completely occupied in krypton. With rubidium the curve returns to the center again. The 5s shell is fully occupied with strontium, and in this way the fifth symmetry is completed.

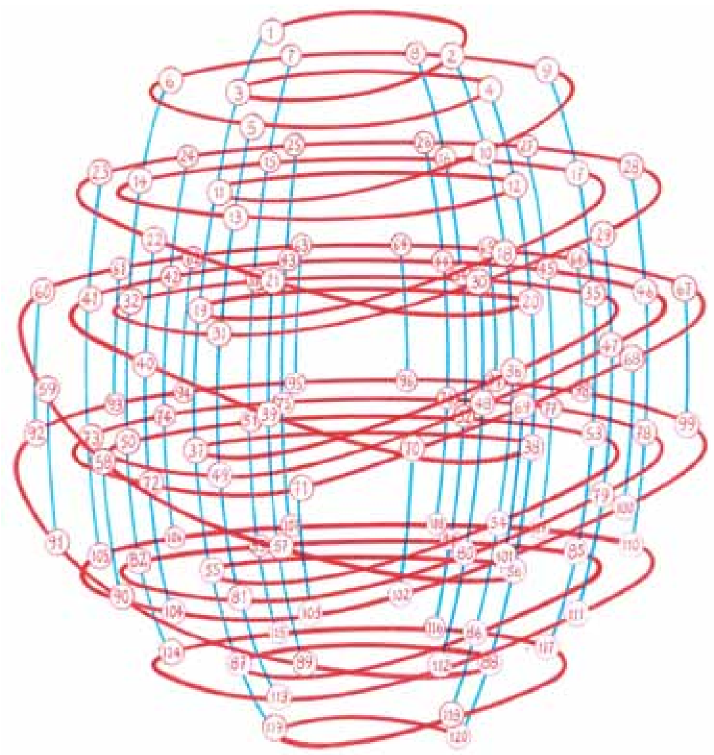


SIXTH SYMMETRY: The 4d shell begins to be filled with yttrium. With palladium the 4d shell is fully occupied but the electron in the 5s shell is lost. This electron is added again in silver. With cadmium the 5s shell is fully occupied. The 5p shell begins to be filled with indium and then is completely occupied in xenon. The sixth shell begins with caesium, once that the curve has returned to the center again. Barium completes the sixth symmetry after filling up the subshell s.



SEVENTH SYMMETRY: Once that the sixth symmetry is completed with barium the trajectory of the helix moves toward the exterior again, in order to complete the next symmetry, the seventh.

The 5d shell begins to be filled with lanthanum. The f-subshell begins to be filled with cerium. The electron that had been removed from the 5d shell with cerium is back with gadolinium. The 4f shell is fully occupied with ytterbium and then an electron is added to the 5d shell with lutetium. This 5d shell continues being occupied with hafnium. Finally, the previously mentioned 5d shell is fully occupied with platinum. An electron is added to the 6s shell with gold, and then this subshell is fully occupied in mercury. The 6p shell begins to be filled with thallium, and then this subshell is completely occupied with radon. The curve moves again toward the center with francium, that begins to fill the s-subshell. Then the 7s shell is fully occupied with radium, and the trajectory moves toward the exterior again.



EIGHTH SYMMETRY:Actinium, since it is located on the same meridian as lanthanum, also has the same characteristic, that is to say that in this element an electron is added to the d-subshell, within the sixth shell in this case. With thorium, that belongs to the actinide series, a second electron is added to the 6d shell. The 5f shell begins to be filled with two electrons in protactinium. An electron, that had been previously lost within the 6d shell, is added to this subshell again in curium. The 5f shell continues being filled with an electron in berkelium and then is fully occupied in nobelium. In lawrencium, where the maximum number of possible electrons for the f subshell is held, an electron, that had been previously lost, is added to the 6d shell.

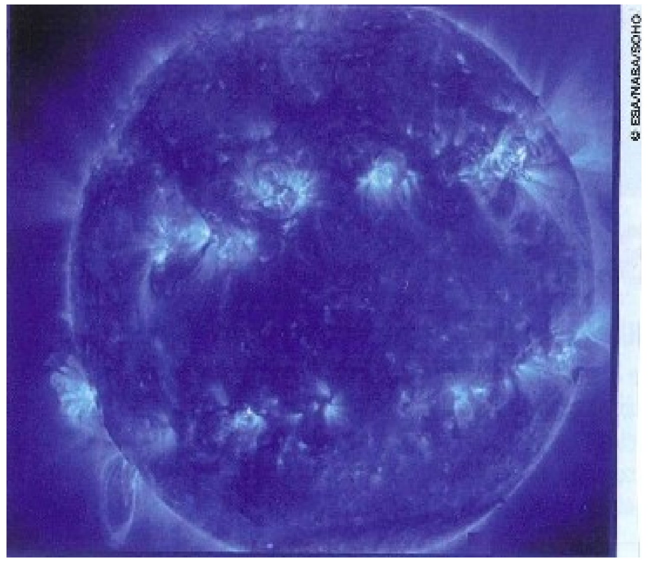
THE SOLAR CORONA

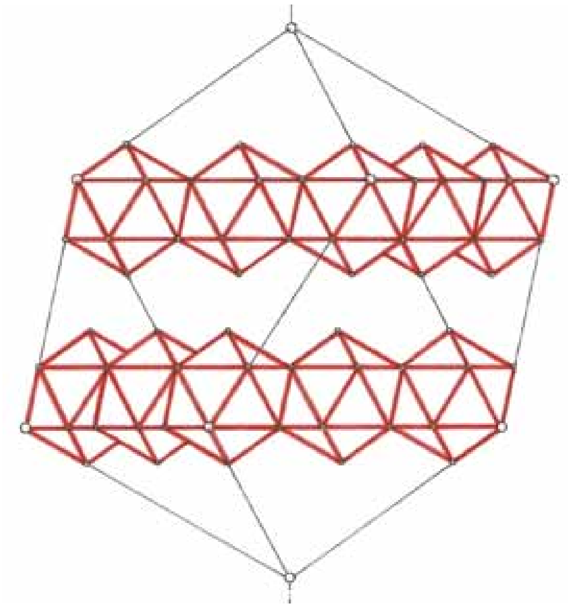
In the following picture it can be observed that sunspots mainly gather along two areas resembling horizontal strips.

In these areas the brightest sunspots coincide with the vertices belonging to the lateral edges of the three-dimensional icosahedral unit.

On a macrocosmic scale the lateral edges of the three-dimensional icosahedral unit correspond to macro strings. Additionally, the nodal extremities of these macro strings correspond to the radiating zones that conform the two previously mentioned strips.

Some received pictures show the simultaneous appearance of sunspots that correspond to nodal vertices of icosahedral units belonging to the different higher geometric dimensions.





The nodes belonging to the lateral edges can be seen in the elevation view above.

EARTH'S INTERNAL STRUCTURE

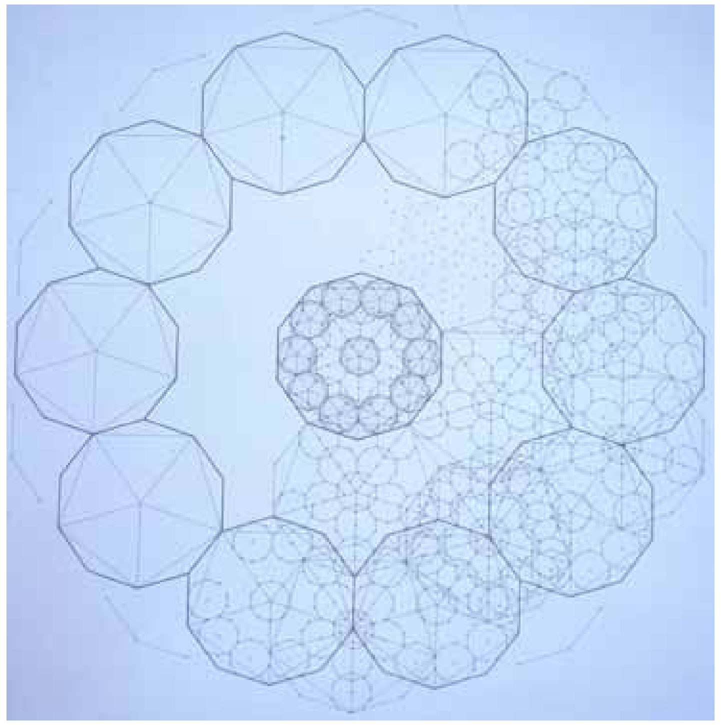
Earth's dynamics link its surface to its deep core, in such a way that an energy transfer is brought about.

The different Earth's layers conform with the geometric structure belonging to the space unit particle, whose components have been already seen previously: The nucleus, the 42 external units and the interrelating six that are located on the three spatial axes.

The lateral edges belonging to the nuclear icosahedral unit give rise to the hyperbolic hyperboloid's surface and link the inner core with the toroidal curves of the magnetic field.

The interrelating units occupy the geometric position corresponding to the outer core and, in this way, they are responsible of the fluid and conducting circulation that occurs in this terrestrial layer.

The thickness of the upper mantle corresponds to the size of the external units belonging to the fifth dimension.



The mantle sub-layer whose most abundant mineral is the post-perovskite has a thickness that corresponds to the size of the geometric structure of a unit belonging to an immediately higher dimension.

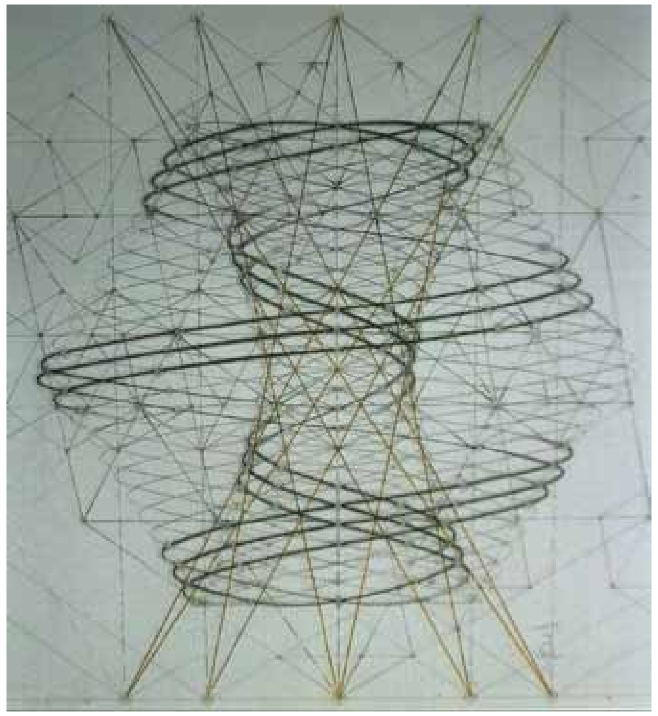
Due to the dynamics of vibrating strings that act upon the polyhedral edges, the contacting surfaces between contiguous layers show some irregularities, both concave and convex, that make them differ from the perfect spherical surface.

Equatorial section of the geometric structure belonging to the space unit particle where four-dimensional units as well as some five-dimensional ones are visible.

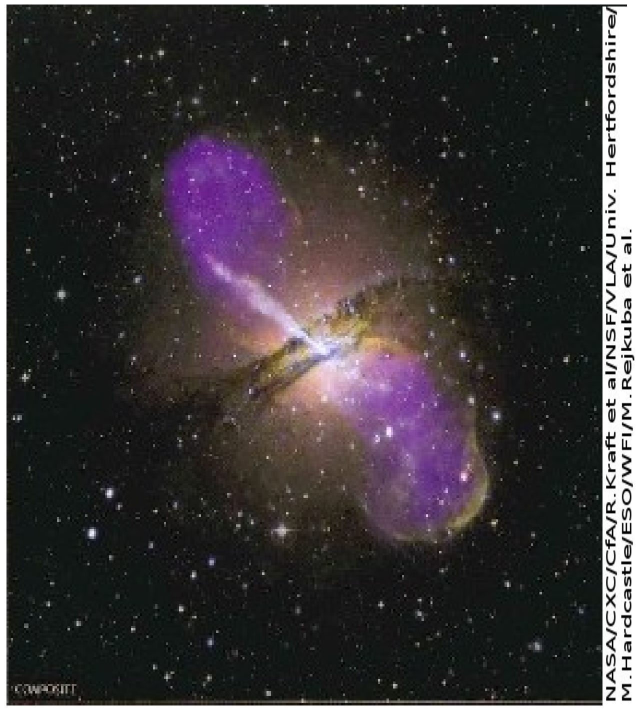
GALAXIES AND THE SPACE UNIT PARTICLE

The geometric structure that gives rise to the unit particle not only acts on a microcosmic level but also on a macrocosmic one.

Thus, on a colossal macrocosmic scale, galactic units also obey this aforesaid geometric structure.



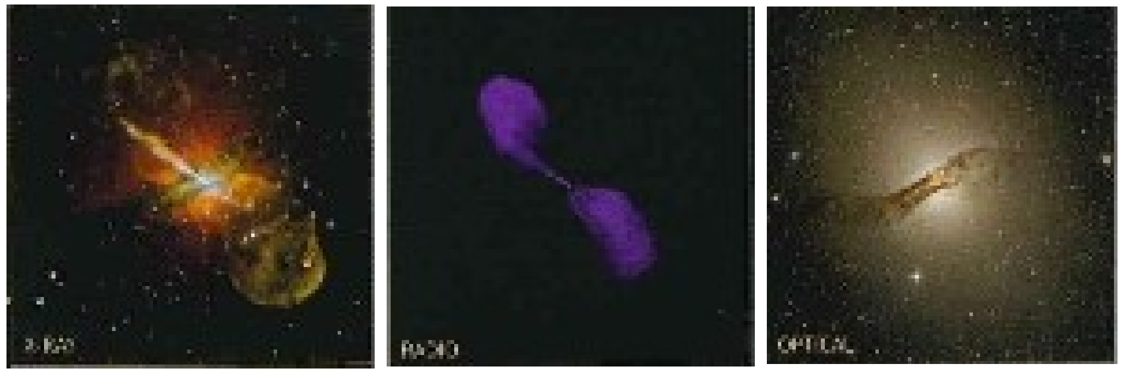
The space unit particle on a microcosmic scale.



Picture of Centaurus A Galaxy, resulting from combining different wavelengths.

The origin of every unit particle always lies in a higher contiguous dimension. From this dimension it is geometrically projected into its new reality. In the same way that the unit particle that constitutes the chemical elements in nature originates in the nucleus located in the fourth dimension, galaxies emerge from black holes.

The emission of relativistic jets by black holes geometrically corresponds to the edge belonging to the four-dimensional icosahedral unit located at the nucleus of the space unit particle. The plasma jets are not emitted from the center of the black hole but from around its edges, so that these jets geometrically extend the aforesaid icosahedral unit's edge.



Different views of the Centaurus A Galaxy, by using different wavelength filters.

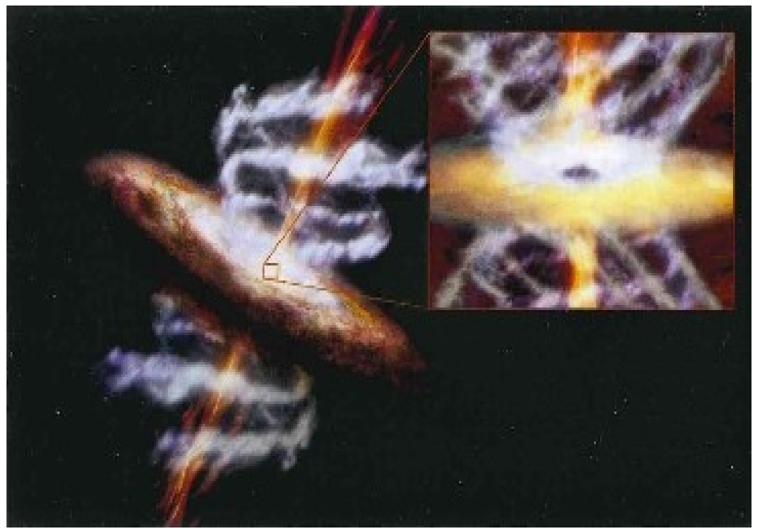
The jet emitted by a black hole results from the vibration of the aforesaid geometrical edge, that may be considered as a vibrating macro string.The whirling jet gives rise to two lobes that are noticeable in the first and second pictures above.

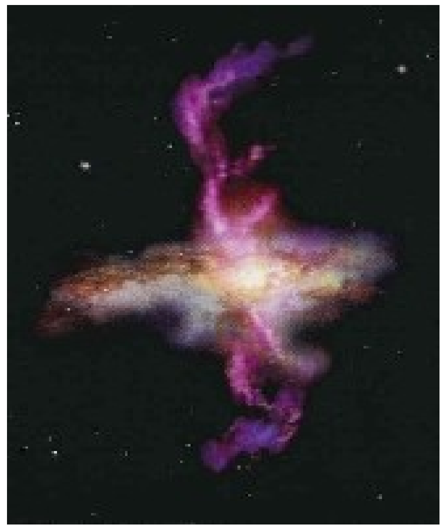
Each jet contains other minor ones that can be explained in terms of the different dimensions. The jet pressure increases with each dimensional increase since its wavelength diminishes.

The vibrating macro string acts as the generatrix of the apparently double funnel or hyperbolic hyperboloid, and at the same time it turns the whirling motion into expansive linear motion.

The hyperbolic surface toroid that shapes both the unit particle and a galaxy acts as a bridge or a gateway between contiguous dimensions. An interaction between the third and the fourth dimensions occurs when we consider two different types of icosahedral units: Each of these is defined by the toroid's outer diameter and inner diameter respectively. The energy has already been transferred from the fourth dimension to the third dimension when it is emitted from the center. Then it expands in the third dimension to be finally absorbed by the nucleus, so that in this way it passes to the fourth dimension.

The vertical component is more pronounced in the jets and lobes belonging to these supermassive black holes that are located at the center of galaxies, and it has an effect on increasing the speed of the stars that are located nearby.





TYPES OF GALAXIES

As in the case of every natural unit, galaxies are apparently different according to a wide range of criteria, such as age, wavelength used in their observation and many others.

However, all of them obey the geometric structure of the unit particle on a macrocosmic scale.

NASA, AGENCIA ESPACIAL EUROPEA, STEVEN BECKWITH (Instituto de Ciencias del Telescopio Espacial) y HUBBLE HERITAGE TEAM

The Messier 51 Galaxy shows us its two spiral arms, which are characteristic of the unit particle.

Telescopio Isaac Newton. Observatorio del Roque de los Muchachos. A. Barrena y D. López, IAC.

In this other galaxy, the M101, such arms do not appear as in the highly defined picture above. Here, some "fibers", whose presence can be explained by the ten filaments belonging to the space unit particle, are observed.

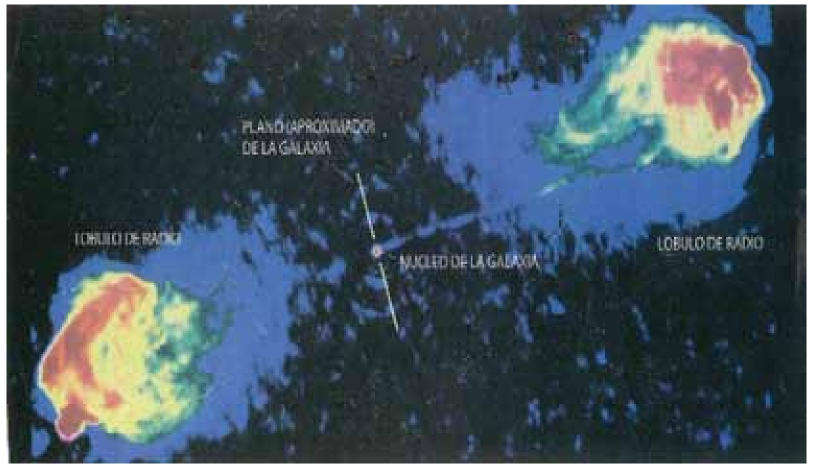
THE SAME ORIGIN BUT DIFFERENT APPEARANCES

Galactic bulges and discs maintain a geometric proportion that obeys the one existing between the four-dimensional icosahedral unit located at the center of the unit particle and the three-dimensional icosahedral unit in which the toroid is inscribed.

The different types of existing black holes (supermassive, stellar and intermediate) obey the relationship among space units corresponding to different dimensions.

Encyclopedia Universalis, Kitt Peak National Observatory

When expanding, an emitted jet creates a shockwave that interacts with the surrounding gas and in this way two radio lobes become visible. Both extreme edges of these radio lobes correspond to the geometric poles of the space unit particle.



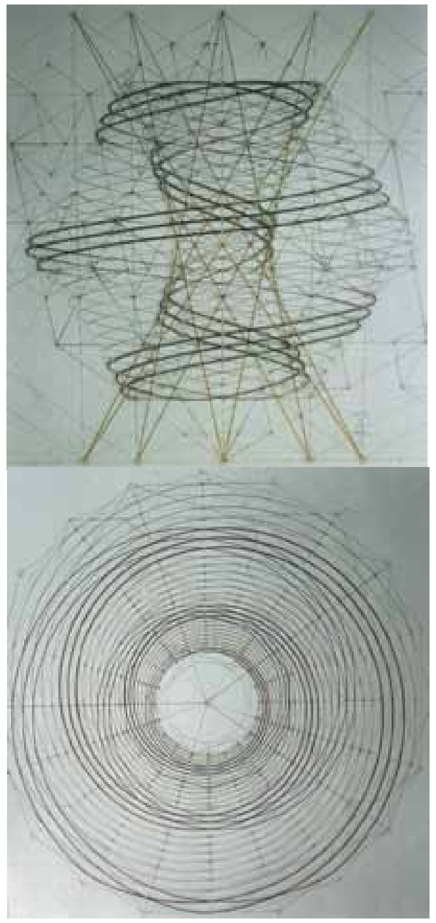
ESO/P.Grosbøl

Galactic bars exist in a high number of galaxies. These bars are formed, disappear and regenerate cyclically.

These bars are related to the hyperboloid's rotating generatrix and their limits are given by the hyperboloid's extreme poles. When these bars reach the poles they continue as spirals in their way towards the galaxy's outer regions. Their aspect depends on the different stages of galactic development.

NGC 1365, also known as The Great Barred Spiral Galaxy. At its center it can be observed a second spiral structure that is surrounded, as the major one, by cosmic dust.

GALACTIC TIDES



Elevation and plan views of the space unit particle.

All motion types that the unit particle exhibits on a microcosmic scale are also perceivable in the macrocosmic unit particle; that is to say, the galaxy.

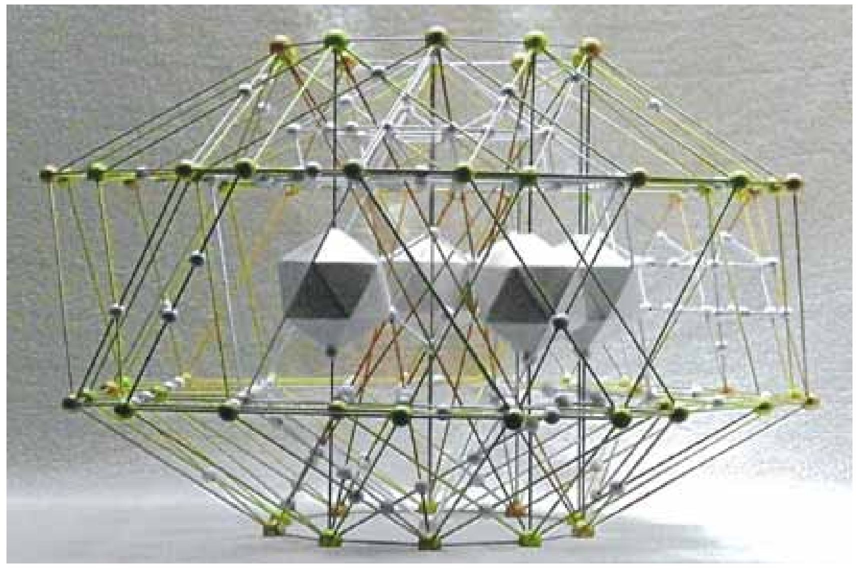
The three-dimensional unit particle, that serves as the basis for the successive formation of atoms in nature, revolves on its vertical axis and exhibits, at the same time, another cyclic motion that comprises ten different positions or "frames" in the polyhedral net, all ten of which form the space-time particle's structure.

The motion resulting from combining both previously mentioned motion types is similar to the trajectory traced by a spinning top.

The galaxy, as a macrocosmic unit, also exhibits these motions when considering the galactic tides.

The ten geometrically quantum positions that the unit particle takes are related to the space unit particle's ten filaments, that form its two arms. One of these arms is made up of three filaments and the other is formed by the other seven.

By taking successive positions the galaxy rotates and cyclically moves along the space-time structure. This geometric structure allows to establish a relationship between the units that belong to the third and fourth dimensions.The simultaneity of both rotating and cyclical motions is necessary to define the figure itself as well as to geometrically shift from the fourth to the third dimension.



Elevation view of the structure belonging to the space-time unit.

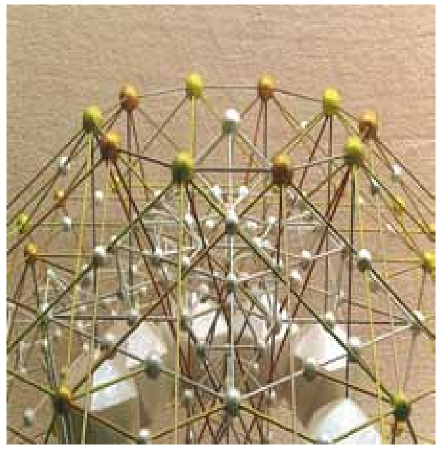
In the picture above we can see the galactic disc of NGC 4013 along with a galactic tide. This one might be interpreted as a "snapshot" of a specific moment within the cycle, an instant within a wave motion.

Although this picture shows a mere part of the galaxy itself, it can be glimpsed its cyclic motion.

Dark matter, that is located on the galaxy's both outer edges and interior, confers plasticity to this tidal motion.

Dark matter, despite being three-dimensional, acts as a dynamic facilitator between the densest constituent parts of galaxies and the four-dimensional universe in which those are embedded.

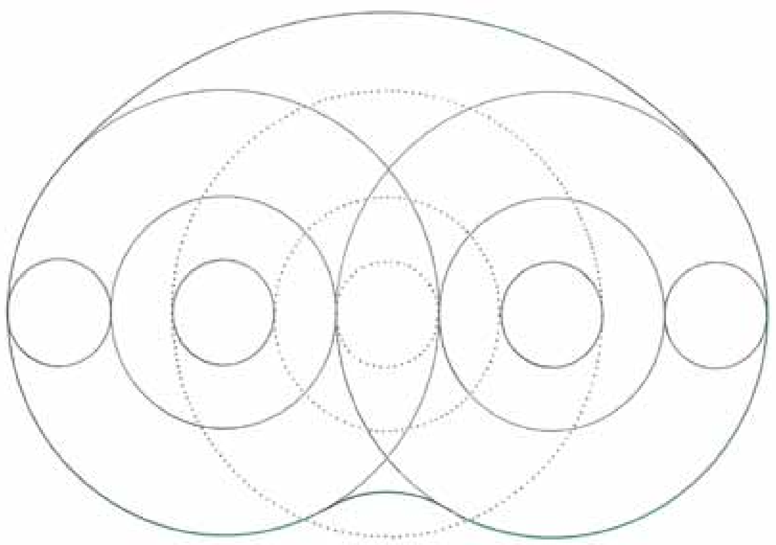
PLANETARY NEBULAE GEOMETRY

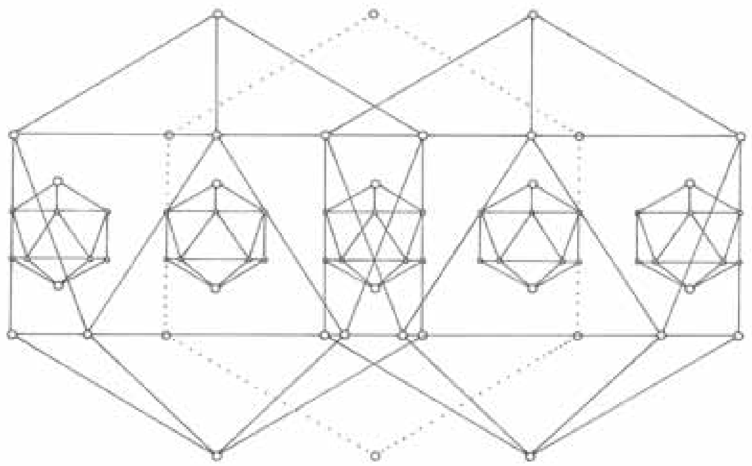


On a macrocosmic scale, planetary nebulae, as specific moments within the life cycle of stars, have the same geometric structure as the microcosmic unit particle when it undergoes a cyclic motion enabling the transference of four-dimensional matter to the third dimension. The space-time unit's structure makes this balance possible.

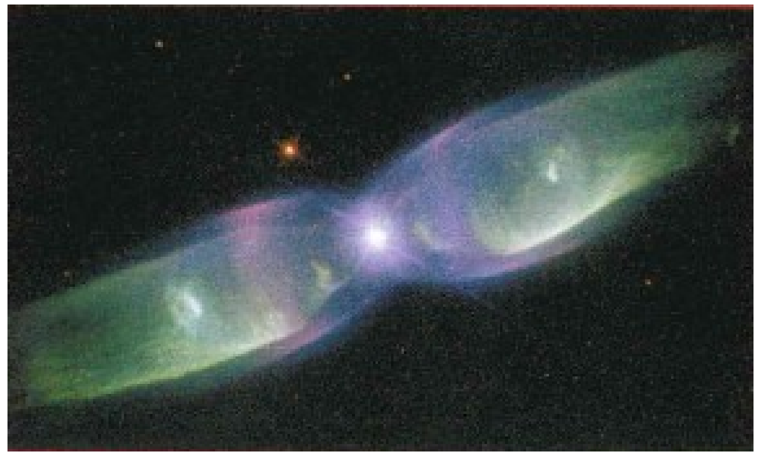
Detail of the upper part of the geometric structure belonging to the space-time unit.

When referring to the space-time unit's characteristic cyclic motion, four-dimensional units are found in the intersections of the ten three-dimensional icosahedra. At the center there is a three-dimensional static unit whose ten four-dimensional components located along its equator are the nuclei of the ten three-dimensional units that make up the wholeness.

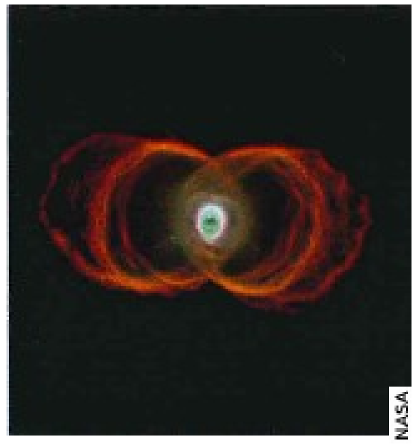




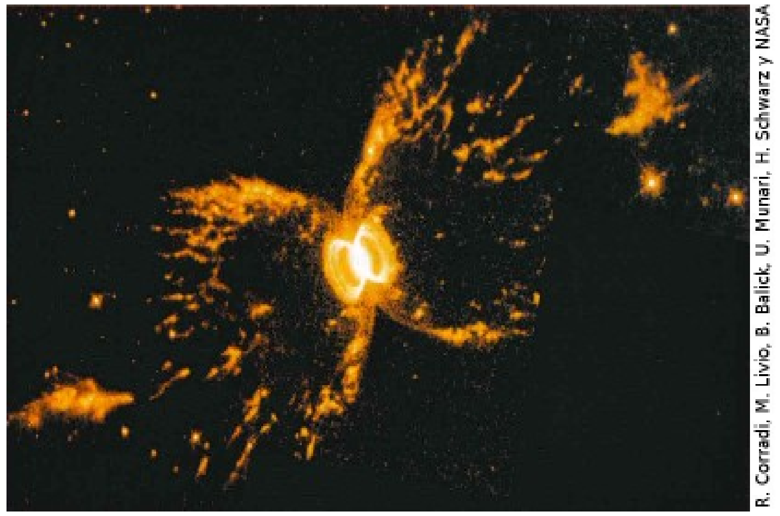
Both in the microcosmos and in the macrocosmos the toroid's geometric properties along with the icosahedron's angular ones lead to the formation of a wide range of natural forms.



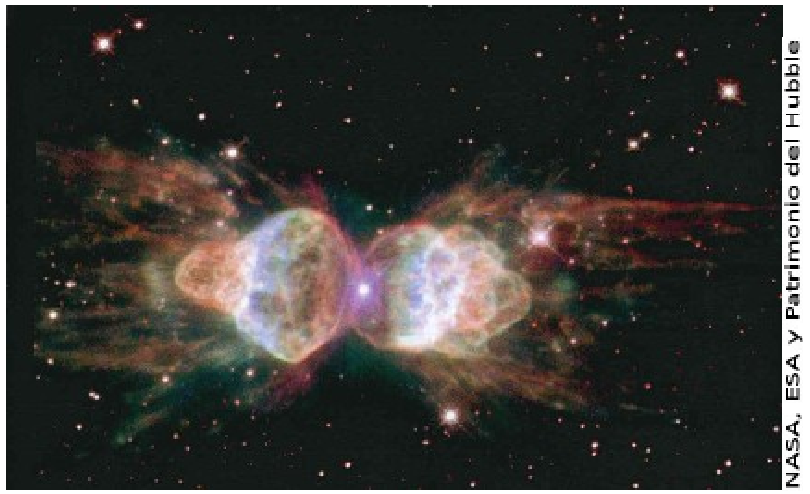
M2-9, also known as Twin Jet Nebula. Both bright zones symmetrically located on both sides of the toroid's center are specially revealing. Geometrically, they correspond to the nuclei of the space unit particle while whirling cyclically within the space-time unit.



MyCn 18 Nebula, received by the Hubble Space Telescope, with the toroid's characteristic rings.



He 2-104 Nebula, also known as The Southern Crab. The existence of a small and shiny nebula within a bigger one can be placed on a parallel with the toroid's central unit. This reminds us of the four-dimensional unit that is shared by the different positions the space unit particle takes cyclically.

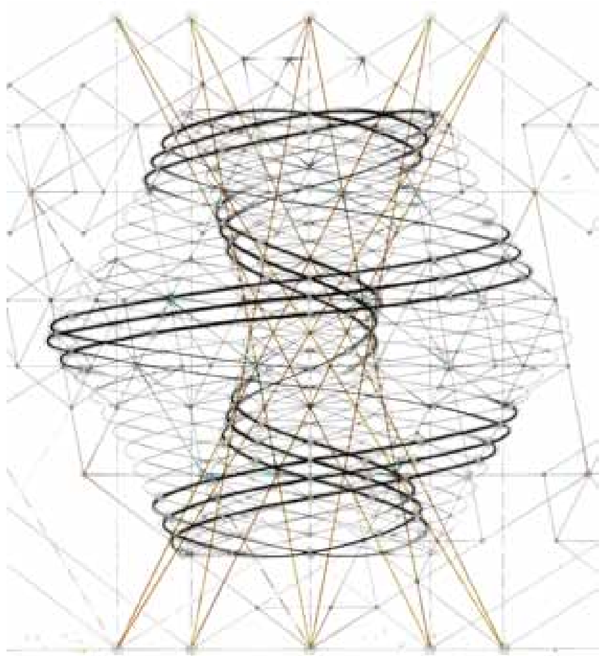


Mz 3 or the Ant Nebula. At its center we can see a star that is geometrically located at the intersection of the different units that make up the whole structure.

CONCLUSION

There is a particle that is the smallest existing unit of the three-dimensional space. It has its own definite form and it cannot be divided further.

It is the basic unit all elements of the periodic table are made up of and gives them mass as well. The elements of the periodic system are distinguished from one another by means of the number of particles in their composition. Thus, hydrogen-1 is made up of 18 of these units; hydrogen-2, or deuterium, contains 36; tritium as well as helium-3 have 54, although they show different forms; helium-4 is made up of 72.

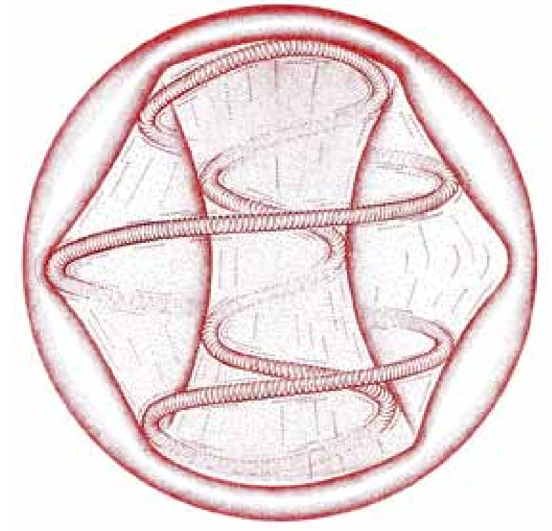


The isotopes belonging to an element exhibit the same structure, even though their number of particles may vary. For example, the stable copper isotope that can be found in nature in a percentage of 70% contains 1134 particles, while the one that is found in the remaining percentage of 30% has 1170.

The structure of this particle is toroidal and it shows ten vibrating filaments distributed in two different sets: One contains three filaments and the other seven. Both sets or arms have such a symmetry that they are opposite when being observed in plan view. In the geometric space the ten filaments are identical as well as their trajectories. They only differ in that they are distributed every 36 degress around the circumference of the circle.

Continuity is an evident feature when we analyze any of these filaments' trajectory: Its origin is situated at the nucleus of the toroid; from this point it revolves up and across a slightly negative curve surface belonging to a hyperbolic hyperboloid towards the edge of the upper part of the toroid, where the trajectory bends to proceed further across the exterior surface of the figure in its way towards the equator, where it reaches a maximum. From this point the trajectory continues towards the south pole where it bends again to proceed up and across the interior surface of the figure to finally reach the nucleus. At this point the filament has described a total of five revolutions since its path started. Anyway, the process does not end once the nucleus has been reached and it starts again, resulting in a continuous circulation of energy.
The particle revolves on its longitudinal axis in one direction or another depending upon the energy circulation, that is to say if the energy enters or leaves the three-dimensional universe.

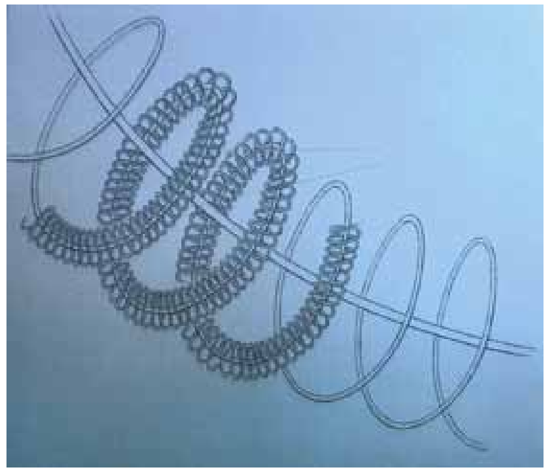
The particle, when it is not affected by any external force, exhibits three clearly defined types of motion: The first one, consisting in a rotational motion on its own longitudinal axis, has been just described. The second one consists in a slight traslational motion that results in a geometric structure that is the minimum space-time measuring unit since it comprises the time derived from the cycle. Finally, the third one mainly consists in a pulsation resulting from the energy circulation through the particle's filaments; a minimum in the pulsation is reached at the particle's nucleus and a maximum is obtained in its external equatorial region.



When these filaments are analyzed deeply, it can be observed that they are not straight but helical. Actually, the spire set that conforms the cylindrical helix of each filament is, in turn, wrapped by other minor spire sets until completing a total number of six for each filament. To the three initial dimensions of space and the six extra ones, we must add time, making, in this way, a total number of ten dimensions for the figure under study.

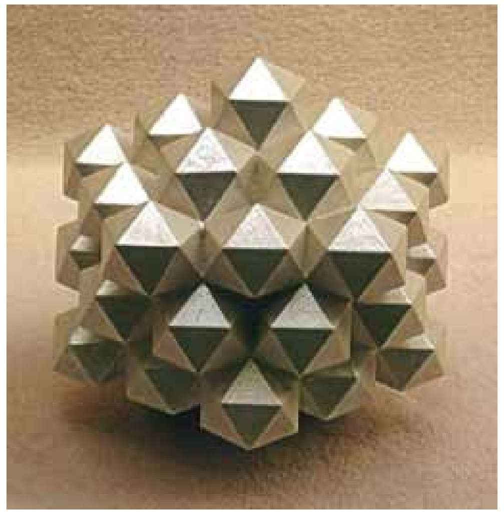
Time being the fourth dimension is something that is perceived distinctly when we observe the space-time unit, where units belonging to the fourth dimension can be found in the intersections between the ten positions the three-dimensional icosahedral unit can occupy.

Energy circulates both through a three-dimensional unit and through the 49 four-dimensional units that are contained within that unit. The quantum growth, based on the number 49, that occurs between dimensions ends in the tenth dimension, when the units composing the wholeness amount to 49^6.



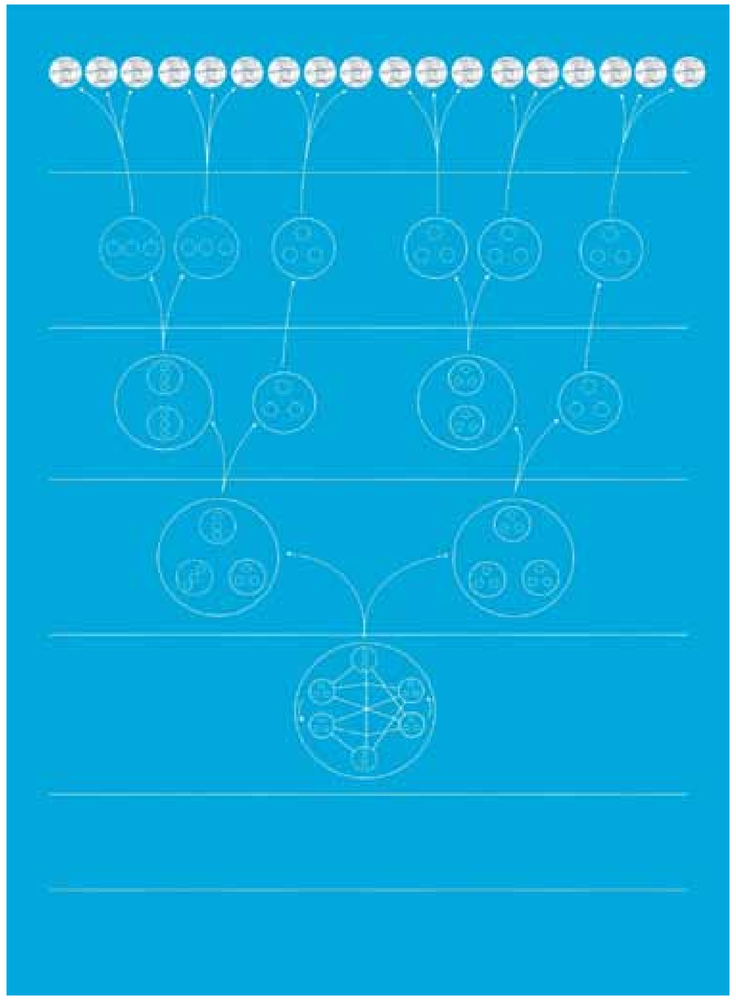
Parallel to this distribution of the different geometric dimensions, there are seven different states of matter: To solid, liquid and gas we must add four plasma states.

In the first plasma state the space unit particles are presented individually; in the second plasma state the particles start to gather in groups of two, three, and so on until a maximum of seven owing to the fact that the central unit can be surrounded by a maximum of six positions on the three axes; in the third and fourth plasma states the groups are bigger, a characteristic that persists in the gas state.



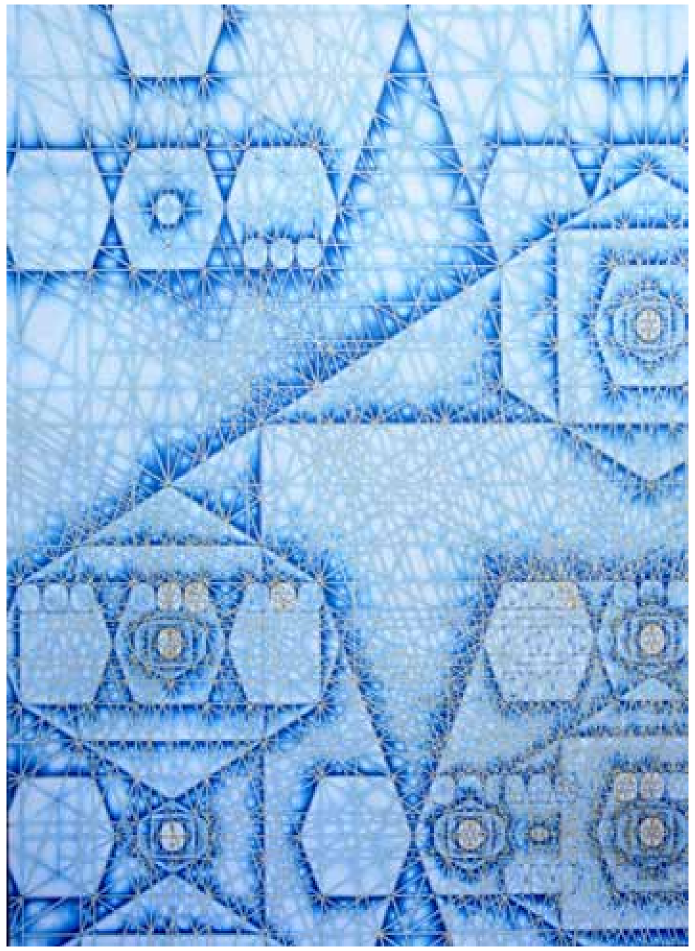
The space unit particle in the first plasma state, as well as the groups in the other plasma states make up the dark matter that, in turn, shapes the ordinary matter in the gas, liquid and solid states. Both the ordinary matter and the dark matter belong to the three-dimensional space; however, most energy is in the upper dimensions. On a geometric level, nature is structured fractally; in the first state of all different dimensions the corresponding spatial units are found individually.

The spatial structure of the unit particle can be shown either as a particle or a wave: When its filaments, once that the north pole is reached, bend to descend externally towards the equator and then proceed until completing a closed circuit, then we are referring to its form as an individual particle. On the other hand, when the filaments do not bend once that they have reached the superior pole of the particle but they proceed ascending across other subsequent particle, then we are referring to the wave form. In fact, the wave consists of a succession of particles that are in contact through their poles.

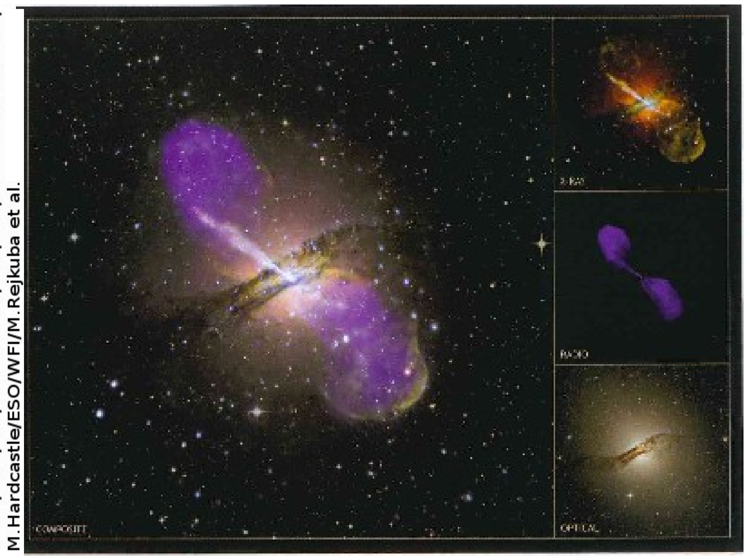


The edges and vertices of the polyhedral spatial net are translated into vibrating strings and nodes in nature. In this way, motionlessness, that has always been a characteristic typical of geometry, is connected to a new dynamic property. In the spatial net, regardless of the possible degree of separation that may exist among the different orders of magnitude concerning the units belonging to different dimensions, such units always have a size that differ from the zero value. Thus, the singularities cease to be and the same is true for the infinite values, enabling the unification of quantum mechanics and the general relativity theory.

Once that the macrocosmos and the microsmos can be also unified, geometry can be used to express a new universe made up of different universes that are interrelated through a dimensional sequence, so that all of them are located in any given spot.



On a macrocosmic level, from the three-dimensional galaxy's uncleus, that is geometrically located in a contiguously superior dimension and acts both as a white hole and a black hole at the same time, a pulsation comes. This pulsation, that descends from the fourth dimension, goes through both the internal and the external toroidal surfaces, initially connecting the third and fourth dimensions, to then proceed with the subsequent ones until completing the total of ten dimensions.



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