A SIX DIMENSIONAL PERSPECTIVE TO DEFINE THE POSITIONS OF THE ELECTRONS & ATOMS

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There is actually a very simple, logical process that I use to develop this 6-D triangular theory for defining atomic space. The micro structure of the atom is composed of a central nucleus (protons, neutrons) and electrons in shell layers. The electrons follow shell layers K,L,M,N,O,P,Q. There is always a specific number of electrons in a shell layer. The electrons repel each other and keep a maximum distance apart in each shell layer. The electron is assumed to spin like a gyroscope (electron spin) yet maintain a constant distance from other electrons in the same shell. The position of electrons in inside shell layers are assumed to follow the platonic solids (octahedron and cuboctahedron). The magnetic field is normal to the spin of the electron called electronegativity. The outer shell layer electrons align in geometric pattern above the lower shell layer electrons following Buckminster Fuller's geodesic geometry. The basic assumption of this paper is the fact that because the macro structure of crystals follow the plutonic solids in pure crystals the electrons must follow similar geometry on a micro level (example diamond crystal and references). The tetrahedron, octahedron, cuboctahedron and octahexahedron are the main primary shapes in crystal geometry. The secondary shapes in crystallography are derived from the main primary shapes. This paper presents a Triangular System to Define Space based on the Six Edges of a Tetrahedron. The plutonic Solids which follow the edges of dimensions of the Tetrahedron are: Tetrahedron - 6 edges, Octahedron - 12 edges, Cuboctahedron - 24 edges, Truncated Octahedron - 36 edges.

1. The concept dimension was developed during the Renaissance. We stand at a 90° angle to the earth and the artist divided space into equilateral squares. Projecting the two directional, or two dimensional, plane into space developed the vanishing point perspective of that time period, the 1500's. The Last Supper is an example of the three dimensional vanishing point perspective, which is still used by architects today. Descartes later developed the Cartesian coordinate system which engineers use today. I found that the tetrahedron, octahedron, geodesic dome etc. are nature at an atomic level. Developing this triangular geometry for a simple plane there are three unique sets of directions or dimensions (R,S,T). Defining depth information there are three unique sets of directions (U,V,W). The sum total of all directions equals six, or six dimensions. The shapes which follow the edges of the tetrahedron exactly are:

1.1) Tetrahedron 6 edges (R,S,T,U,V,W) vectors
1.2) Octahedron 2 (6) edges (2R,2S,2T,2U,2V,2W)
1.3) Cuboctahedron 4 (6) edges (4R,4S,4T,4U,4V,4W)
1.4) Octahexahedron 6 (6) edges (6R,6S,6T,6U,6V,6W)

The Dodecahexahedron has 48 edges. The edges, however, are not exactly parallel to the (R,S,T,U,V,W) of tetrahedron. They are within ± 10 degrees of the original (RSTUVW). They are:

1.5) 8 (6) edges plus or minus 10 degrees ≅ (8R,8S,8T, 8U,8V,8W).

The Six Dimensional Graph (fig.1) shows the six unique sets of vectors for defining space. The basic unit is a tetrahedron. There are six unique sets of directions. The carbon atom follows the symmetry of a tetrahedron.

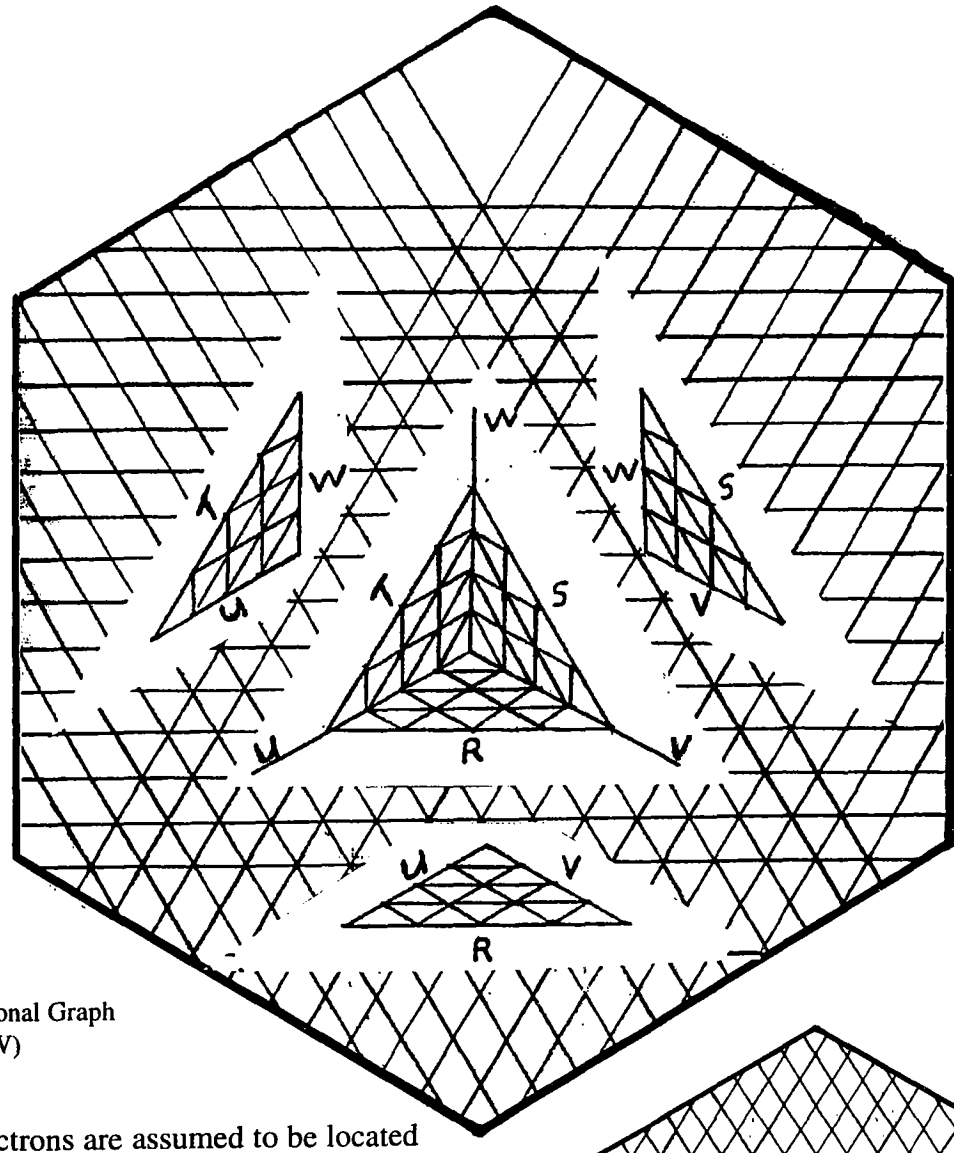

Figure 1
The Six Dimensional Graph
(R, S, T, U, V, W)

The electrons are assumed to be located in space like little spinning gyroscopes. The shell layers have a specific number of electrons in each shell layer, based on the number of the Element. Each shell layer is filled in the right column. The column contains the nobel gases. The gas Neon has eight electrons in outer shell L. The shape of the Neon gas is (fig.2) an octahedron. The electrons are located in the centroids of each equilateral triangle.

The gas Argon has eight electrons in shell M. The shape of the Argon gas shell M (fig.3) is a cuboctahedron. The electrons are located in the centroids of each equilateral triangle.

The gas Krypton has eighteen electrons in outer shell N. The shape of the Krypton N shell is a cuboctahedron (fig.4). The first twelve electrons in the sub shell N are located at the vertices of a cuboctahedron. The six electrons located above the vertices of the octahedron complete the outer shell at 18 electrons.

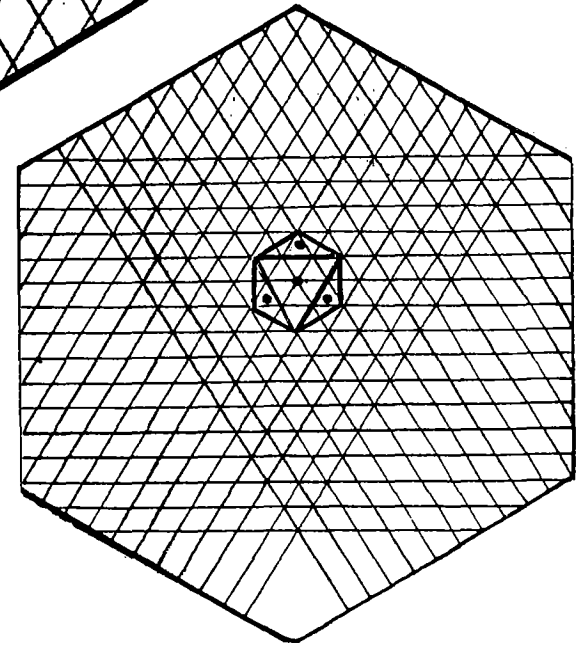

Figure 2
Octahedron
on triangular graph

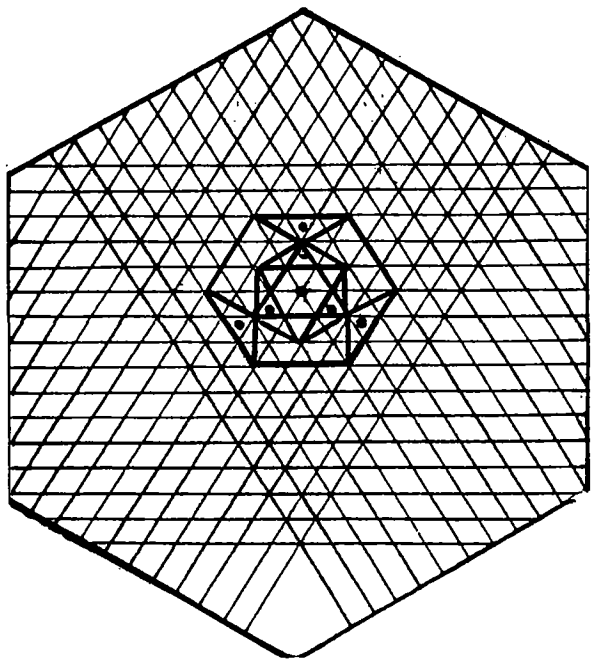

Figure 3
Octahedron inside a
cuboctahedron on triangular graph

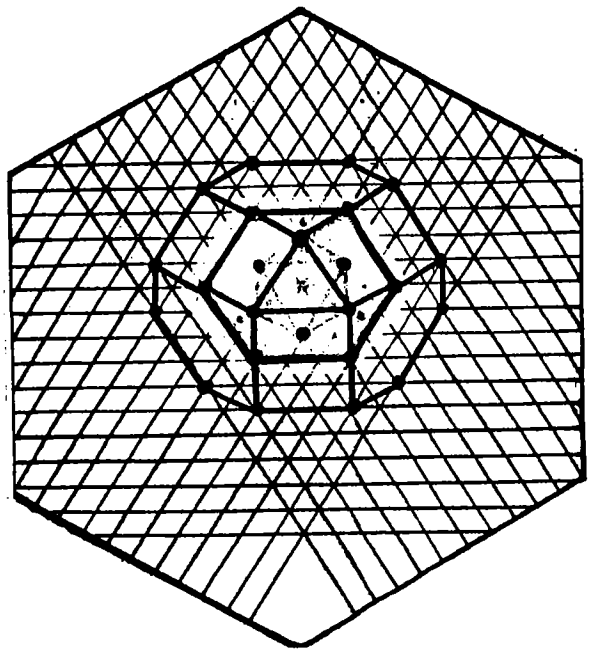

Figure 5
The vertices of a
Cuboctahedron inside O Octahexahedron

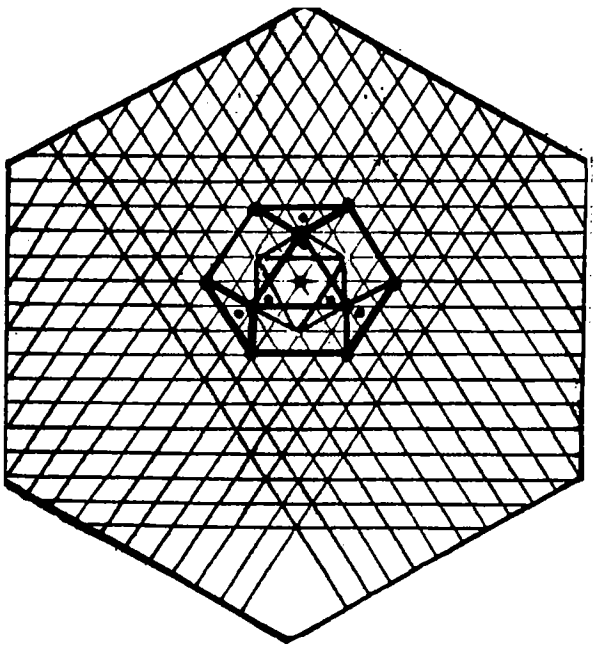

Figure 4
The vertices of a
Cuboctahedron & Octahedron

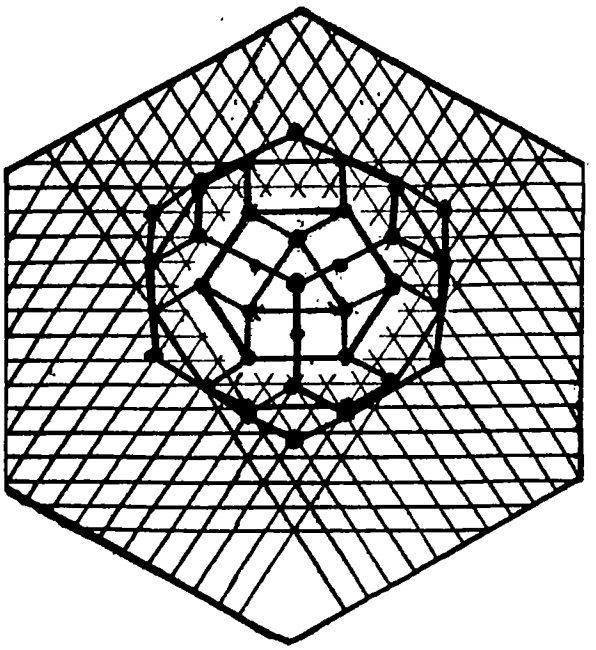

Figure 6
The Cuboctahedron inside
the Octahexahedron inside the Dodecahexadron

The gas Xenon has twenty-four electrons in outer shell O. The shape of the Xenon shell O is an octahexahedron (fig.5). The twenty-four electrons are located at the vertices of an octahexahedron.

The gas radon has thirty-two electrons in outer shell layer P. The shape of the radon shell P is a dodecahexahedron (twelve hexagons and six squares) (fig.6). The thirty-two P shell electrons are located at the thirty-two vertices of a dodecahexahedron.

3. The Micro Structure of the Carbon Atom as compared to the Macro Structure of the Diamond Crystal:
The Carbon Atom in organic chemistry bonds in four directions following the symmetry of the tetrahedron. The electrons are said to follow the K & L shell layer or the SP3 hybridized electron orbital theory. The Electron Periodic Table displays carbon atom #6 as having octahedral symmetry. The electrons are at the centric position of 4 equilateral triangles. The octahedron and the tetrahedron are in a marriage in the diamond crystal forming an octahedral tetrahedral truss. The octahedral version of the diamond crystal is viewed on an octahedral tetrahedral graph. There is a direct connection of the Micro atomic structure of the electrons and the Macro world of crystals. Mineralogists claim most diamonds get larger by adding new atoms to its surface. The example of the diamond crystal growth (fig.7) with octahedral tetrahedral symmetry of carbon atom forming octahedron crystal. The symmetry is rooted in equilateral triangles. Redefining space into equilateral triangles forms six direction vectors R,S,T,U,V,W.

The Electron Periodic Table demonstrates the symmetry of the electrons in the columns and shell layers based on the geodesic shapes. The super conductive Barium #56 symmetry was presented at the World Congress on Superconductivity.

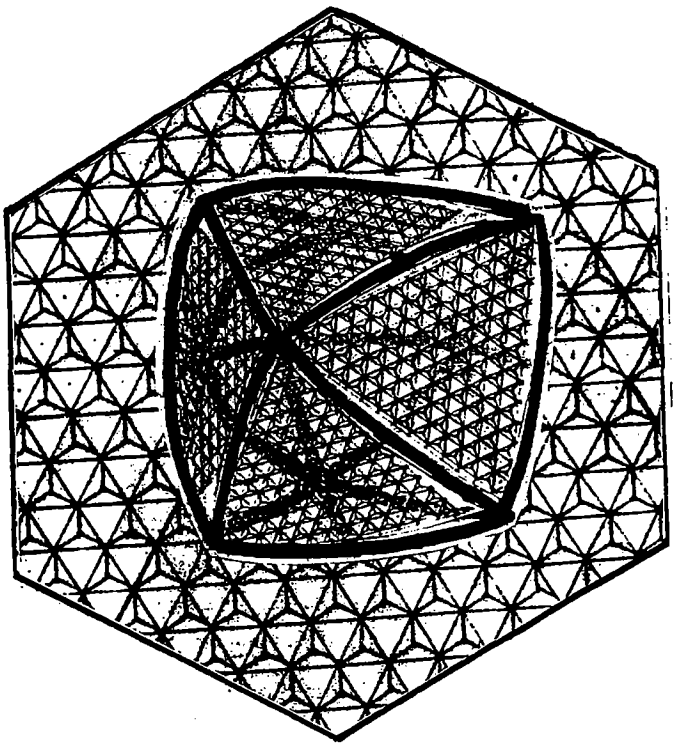

Figure 7
Diamond Crystal Growth

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