

Trigonal representation of quantum orbitals, from hydrogen to calcium

L. Audet¹

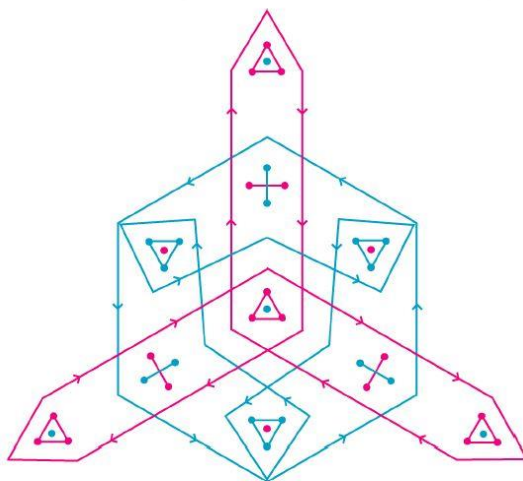
¹INRS, ETE, Quebec, Canada

Inspired from the work of Van Meersshe and Feneau-Dupont (1984), the ternary representation of the basic models in crystallography offers interesting perspectives to illustrate quantum orbitals, the classical S, P, D and F orbitals, by using a 3D representation of a trigonal system in place of the orthogonal system. On the other hand, the studies of the molecular orbitals of orthohydrogen (spins in the same sense) induces the hypothesis of a singularity zone between the atoms of hydrogen which could be a neutral zone favourable to the emergence of neutral particles and potentially can reorganize the repartition of electronic orbitals. Therefore, the nuclear spins can be related to the quantum orbitals distribution. Finally, by associating the ternary system in crystallisation with the orientation of nuclear spins and chemical bonds between the elements, we could work out a “trigonal” representation for the first elements of the periodic table, from hydrogen to calcium. The trigonal approach can facilitate the 3D representation of complex orbital systems. It offers a theoretical potential for crystallographic studies and it can support a large program of experimentation about the formation of the isotopes, the ionic character of covalent bonds and the gas state at low temperature for the electronegative elements of the periodic table.

[1] Van Meersshe, M., Feneau-Dupont, J., *Introduction à la cristallographie et à la chimie structurale*, Ed. Peeters, Louvain la neuve, 1984, 849 p., [2] Lederer, C. M., Hollander, J.M., Perlman, I., *Table of isotopes*, John Wiley and sons, New York London Sydney, 1967, 594 p., [3] Tournier, M., *Chimie 1. 2-Les familles chimiques*, Centre éducatif et culturel Inc, Montréal, 1980, 198 p.

Symbolic representation of electronic circulation
around a trigon of positive nuclear spin

The three neutrons (in form of cross) maintain cohesion
between the three protons of positive spin (in form of triangle),
the central proton of negative spin and the three protons of negative spin



The blue color correspond to a circulation of positive spin,
from right to left.
The red color correspond to a circulation of negative spin,
from left to right.

CHRONOSCIENCE

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