

SUMMARY.

- I. The fractal, organic Universe. The Metrics of the fifth dimension.
- II. Its application to an organic philosophy that unifies all 'sciences'.
- III. Worldcycles: predictability of the Future of 5 D systems. AbcdE of the scientific, organic method.

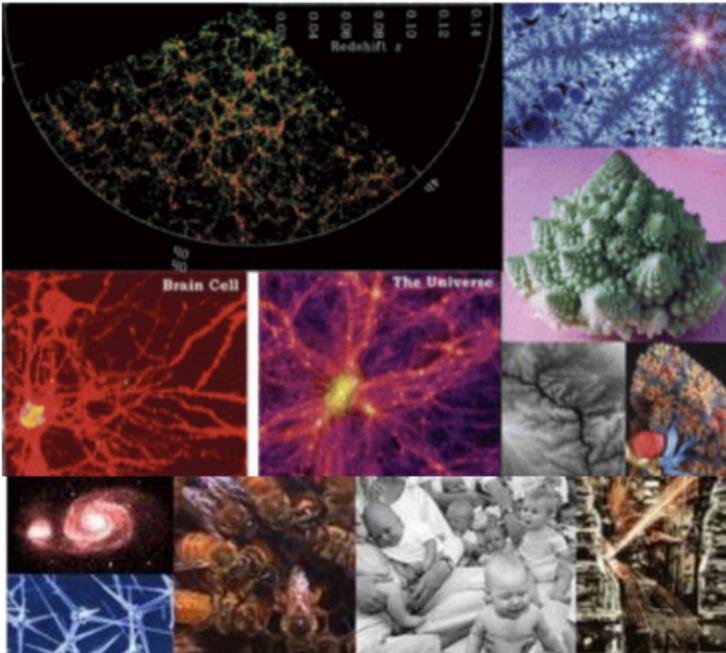
I. THE FRACTAL, ORGANIC 5D UNIVERSE: ITS METRIC EQUATIONS

When we google the 5th dimension one gets surprised by the quantity of speculative answers to a question, which is no longer pseudo-science, but has been for two decades a field of research in systems sciences rather than physics (: no, the answers of google, considering the fifth dimension the upper-self etc. seem to be very popular, but are to the science of the 5th dimension more like a medium in earlier XX c. talking about the 4th dimension as astrological awareness, for lack of understanding of Einstein's **metric equations** of the 4th dimension).

This is the key word that differentiates pseudo-science from a proper scientific description of a dimension of space-time, *the existence of a metric equation that describes a dimension and allows to travel through it*. Why the 5th dimension metrics are not well known in modern science has to do with the fact it is not researched in physics but systemics, the mother discipline of all sciences of information, far less popular than physics; and the proprietary feeling physicists acquired on space-time matters since Galileo defined its 3D metric equation $v=s/t$ completed with Einstein's 4D formalism, which makes difficult to spread the knowledge on space-time acquired on other disciplines. The arguments still raging about evolution, the fundamental theory of time in terms of information, as the 'arrow that defines' the future of species but has nothing to do with Relativity and locomotion is a clear case of that difficulty.

Indeed, we know since the XIX c. that the creation of the 'future time' of an existential entity is not ONLY mediated by the arrow of **locomotion** and entropy studied by physicists with Relativity Metrics (Galileo's $V=s/t$ and Einstein's more complex formalism), but there is a second arrow that defines the 'future' of existential species - the evolution of its information. So time – *the changes motions that defines the existence of any species*, has at least 2 dimensions, locomotion or ordered translation in space and a more disordered version, entropy (scattered motion that 'dissolves' the inner form of the system, akin to death)...

And in-form-ation, generation of form, inverse to entropy as it requires the social gathering of parts into wholes; happening without external locomotions, as an internal trans-formation of **form**. This evolution of organic form as opposed to external change is what Systemics calls the fifth dimension of time that applies to all sciences.



Specifically in systems sciences we model reality as an organic fractal of relative size scales, that evolve from parts into larger wholes, from particles into atoms, molecules, cells, matter states and so on till reaching the Universe, shaped by social and organic networks coded with information.

In the graph the Universe is a fractal that reproduces 'forms with motion', informations and then **organizes** them in networks and systems that evolve into larger organic systems creating the scalar structure of reality.

Thus we call *the sum of all those co-existing scales of parts and wholes the fifth dimension*.

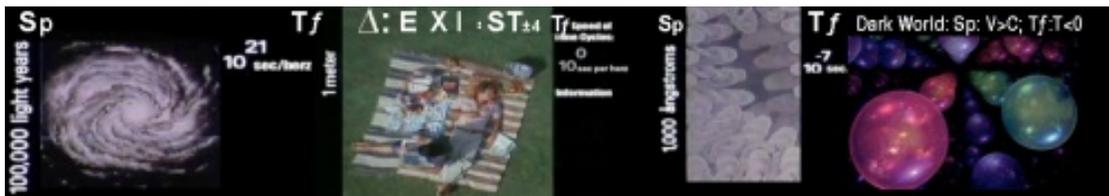
Mathematically then it is necessary to find a metric equation to define this new dimension of space-time. Since a dimension only exists when we can write a mathematical simple metric that leaves the dimension invariant when we change our parameters of space and time - hence we travel through it. (Klein).

This equation, as all space-time metric equations, is simple. So we write using δ for cyclic time instead of t :

$$S \text{ (Lineal Size/Volume in space)} \times \delta \text{ (cyclic speed of its time clocks)} = \text{Constant.}$$

So according to those metrics, smaller systems in space have faster time clocks. And as information is stored in the frequency and form of those cycles, smaller systems have more information, coding larger ones: genes code cells, memes societies and particles' quantum numbers code atoms and molecules.

This equation and its use to improve our knowledge of space and time in all sciences, with an emphasis in our models of physical systems will be the theme of this paper. Even if physicists stubbornly refuse to treat information with the same value than entropy. So they call it negentropy, and when you give a conference on the fifth dimension – the dimension of ‘creation of social forms of information, of organic wholes’ - there are no physicists on attendance; and likely no physicists will be reading this post... Let’s then use the metrics of the 5th scalar dimension to explain the fractal, nested Universe and its scales, shown in the graph:



The metric equation of the fifth dimension of space-time (ab.Δ) defines 3 known scales of physical systems, with different quantity of information according to 5D metrics, $Sx\delta=k$, which means information i , higher in smaller ‘quantum plane’ and the size of its organic parts, larger for the Gravitational cosmological ‘plane’, with the human thermodynamic scale in-between; as a ‘potential’ fourth, $\Delta\pm 4$ plane that would define ‘above’ the galaxy, (dark energy world) and below the quantum world (Bohm’s quantum potential) a larger cosmos, which according to the fractal nested principle which encloses in any organic system, smaller nested systems, contains $\Delta\pm 3$ galaxies, which contain $\Delta\pm 2$ solar systems and planets, which contain $\Delta\pm 1$ thermodynamic organisms and matter states, described by human Δ^0 mind languages:

It follows from that nested structure a symbiotic relationship between the Δ_j smaller parts that have more speed of time clocks, which carry its in-form-ation in the form and frequency of its cycles, coding larger systems: genes code cells, memes code social organisms and particles' quantum numbers code atoms and molecules. And the larger, Δ_j larger envelopes, membranes (static, dimensional view) or angular momentums (dynamic view as time=motions) which have more spatial energy and enclose and control in synchronicity its faster smaller parts, creating the co-existing scales and symbiotic cycles of super organisms in any system of the Universe.

For example, chips become smaller as they evolve into faster brains. Every 2 years a chip doubles its capacity to think, as it dwindles in size. Such process follows a generic law of evolution I call the ‘Black hole Law’, which computer scientists know as the ‘Chip paradox’ or ‘Moore Law’: maximal informative capacity= minimal spatial extension. The reason is obvious: to think, to calculate you have to communicate in-form-ation, forms between elements of any informative system. The smaller the brain, the faster the communication that takes place within that brain and the faster you can calculate and process information in a logic manner. And vice versa: larger wholes accumulate more energy and are stronger than parts, so they can protect and feed them. So wholes and parts co-exist in several scales forming super organisms.

Thus 5D metrics describe organic properties because it balances the survival symbiotic existence of all parts of the Universe in any of its fractal super organisms, made to the image an likeness of the whole, as

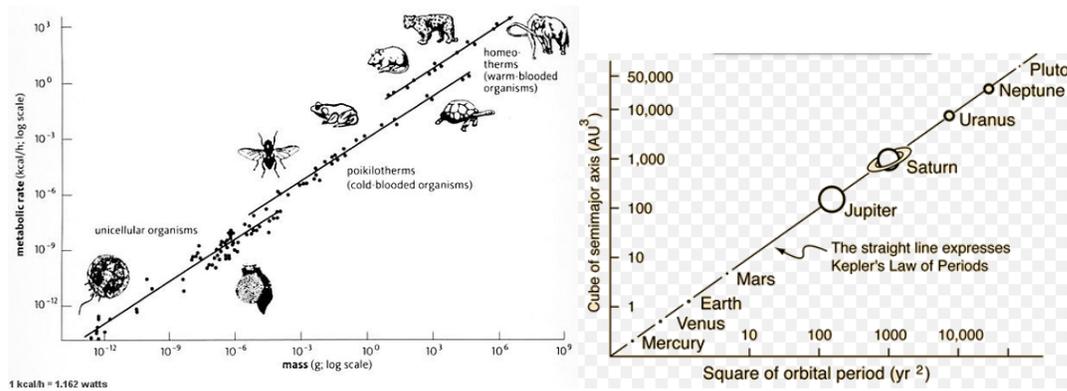
the smaller beings 'code information' with faster clocks, and the larger wholes enclose and protect the smaller parts with its greater energy- establishing an organic 'harmony' in all the scales of the Universe, and explaining its fundamental constants, which are ratios between spatial volumes enclosed by membranes and angular momentums of informative clocks of time:

The galaxy's 5D metric is immediate: $\$(c) \times \delta (h) = \text{Constant}$, as its largest speed-distance is light and its minimal unit of cyclical information, is the Planck constant of angular momentum, which is used the unit of the 3 human physical parameters of *spatial size, cyclical time frequency and 'scale'* (Active magnitude):

$$h = \text{mass } (\Delta) \times \text{area } (S) \times \text{frequency } (\delta).$$

So h, we shall call 'Planckton', is the minimal fractal organism which feeds all other species of the Galaxy, as Plankton is the minimal cellular unit of the biologic Universe which starts the trophic pyramid of life.

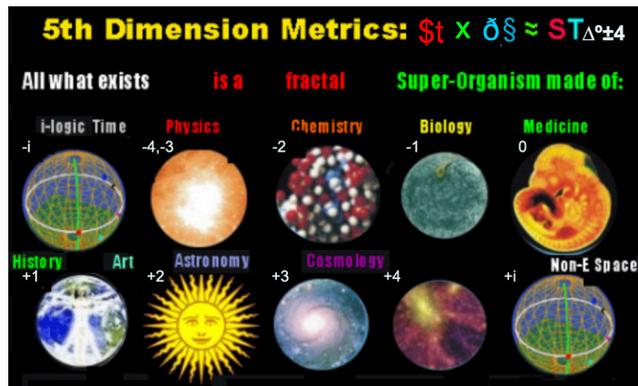
In the next graphs we show some classic examples of 5D metric co-invariant $S \times \delta$ balances within the galaxy in biology and physics, explained by the scalar, organic dimension of the Universe: the metabolic clocks of animals; and the orbital clocks of planets both related to the volume enclosed in its vital space:



Thus organisms have higher heart beats and consumption of energy the smaller they are; becoming faster and more intelligent than larger beings. So they can co-exist together, as the smallish one reacts faster: I.e. a fly thinks 10 times faster (5D scales are decametric), we cannot catch them and the survive.

While Kepler's laws of planets or any physical vortex in any number of dimensions follows the same co-invariance metric: $V(\delta) \times R(\$) = K$; as particles spin faster the smaller they are.

We can then unify philosophically and organically all the scales of size of the galaxy, from the h-planck scale to the astronomical scale, each one studied by a 'different science' specialized in those scales:



II. ITS APPLICATION TO AN ORGANIC UNIFICATION OF ALL SCIENCES.

"According to their [Newton and his followers] doctrine, God Almighty wants to wind up his watch from time to time: otherwise it would cease to move. He had not, it seems, sufficient foresight to make it a perpetual motion. Nay, the machine of God's making, so imperfect, according to these gentlemen; that he is obliged to clean it now and then by an extraordinary concourse, and even to mend it, as clockmaker mends his work.' *Leibniz-Clarke Correspondence on the absurdity of mechanical models of the Universe*

Formal sciences: Non-Æ logic Geometry

Before, out of the ginormous field of 5D studies, which as the graph shows, defines and upgrades each 'science' of space-time beings that studies entities of each specific dual $\Delta \pm 1$ scale of the nested Universe; we focus in depth on the Galaxy's metrics it is necessary to mention some upgrading of Formal and biologic sciences achieved by 5D metrics departing from the fundamental postulate of systems sciences, defined by its Founder, Bertalanffy, as organicism – the reasoned belief that all what exists is an organic system, and that regardless of scale, those organic systems follow similar 'Isomorphic' laws based in the equal of its forms in space and functions in time.

Since of the 3 possible philosophies of science Deism, mechanism and organicism only organicism is a scientific truth. Indeed, according to *Deism* the whys of existence are due to a personal being, external to the Universe that makes it all happen and cares for humans more than for the rest of His work. According to *Mechanism*, this is due to the self-similarity between the Universe and the primitive machines we humans construct to observe it. Mechanism though needs 'someone' to make the machine, which is not self-generated; so it is similar to deism, reason why the founding fathers of science, all pious believers, adopted it as a proof of the existence of God, which had given man self-similar properties – the capacity to make machines to the image and likeness of the Universe.

The problem with those 2 approaches, which in fact are the same is obvious: a personal God is an anthropomorphic, subjective myth and science must be objective; while a mechanical view of the Universe still needs an internal, self-sustained process of growth, creation and synchronization caused by an external God that made and rewinds the clock – as Leibniz clearly stated in his critique of Newton.

Scientists today are unaware that mechanist theories are in fact deist theories, reason why Kepler and Newton, pious believers, liked them; since they were a metaphor of their self-centered, anthropomorphic religious beliefs: If man created machines because we were made to the image and likeness of God, God had created the ultimate machine, the Universe.

Organicism on the other side is the only self-sustained, rational theory that doesn't need a creator, language, god, as organisms are self-replicating, *but does explain perfectly within the 'correspondence principle', those 2 other philosophies of science; since a machine is just a primitive organism of metal, and Gods are the subconscious collective of civilizations, ANOTHER scale of social evolution of the fifth dimension.*

What 5 Metrics does is to formalize this philosophical insight, making systemics and its related sciences of complexity, cybernetics, theory of information and organic eusocial evolution, 'hard sciences' after 50 years of a wealth of insights that needed to be systematized.

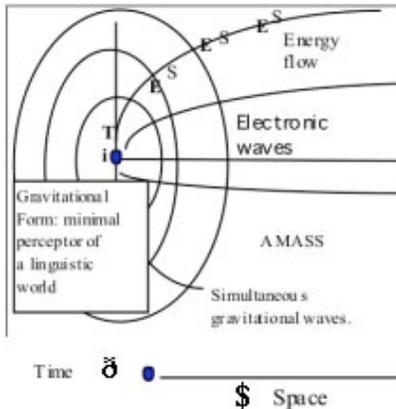
Let us then close this introduction to 5D systems with a very brief synopsis of those upgrades that range from the expansion of formal sciences, hardly evolved in its foundations since the age of the Greeks and its:

- **Lineal A->B Aristotelian logic**, we expand to a **Non-Aristotelian entangled pentalogic of 5 D;motions** (ab. Dimensional motions of space-time), where *all the Dimotions of a fractal being converge to create its superorganism in space; and...*

- **Euclidean Mathematics**, which only corrected the fifth postulate allowing a point to hold infinite parallels that we expand to full **Non-Euclidean Mathematics**, as now each point grows in size as we come closer to it, becoming a **fractal point with parts**, (new first axiom=postulate of Non-E: A point has breath).

So we explain without contradictions Non-Euclidean points, which were not logic in a single scale, as they 'curved' parallels which are 'straight lines' and fit them in a 'point with no breath' that holds only 1 line. But now they enlarge fitting multiple 'straight lines'. But as humans only see a scale of reality our perception becomes 'deformed' curving them – a theme, the distortion of human measures of time, space and scale, which will be instrumental to explain rationally the 'spookiness' of quantum physics and relativity time and space transformations.

It follows then the correction of the key axioms and principles of geometry that will make Mathematics far more vital, and we call the '5 Postulates of Non-Euclidean geometry'.



In the graph, Einstein's interpretation of the 5th non-Euclidean postulate kept the view from our larger world, bending parallels, but parallels are straight lines, so particle points must be defined more like we see any of them with telescopes or microscopes, peering in its relative scale from its relative point of view, as enlarging worlds with a very complex internal structure when studied in detail.

So points are fractal points, which harmonize the 1st axiom=postulate with the 5th postulate of non-Euclidean parallels, as a fractal point, a cell, atom or particle of a smaller scale of the fifth dimension can host multiple parallel flows of energy and information crossing it).

Thus the 2nd postulate defines lines of points as waves of points with volume (which explain directly the complementary wave particle).

And the 3rd postulate defines planes as the intersection=messing of 3 'lines=networks' or waves of points in motion, which carry energy and information; to its cells, defining the biotopologic plane, a physiological system with 3 networks or Non-Euclidean plane.

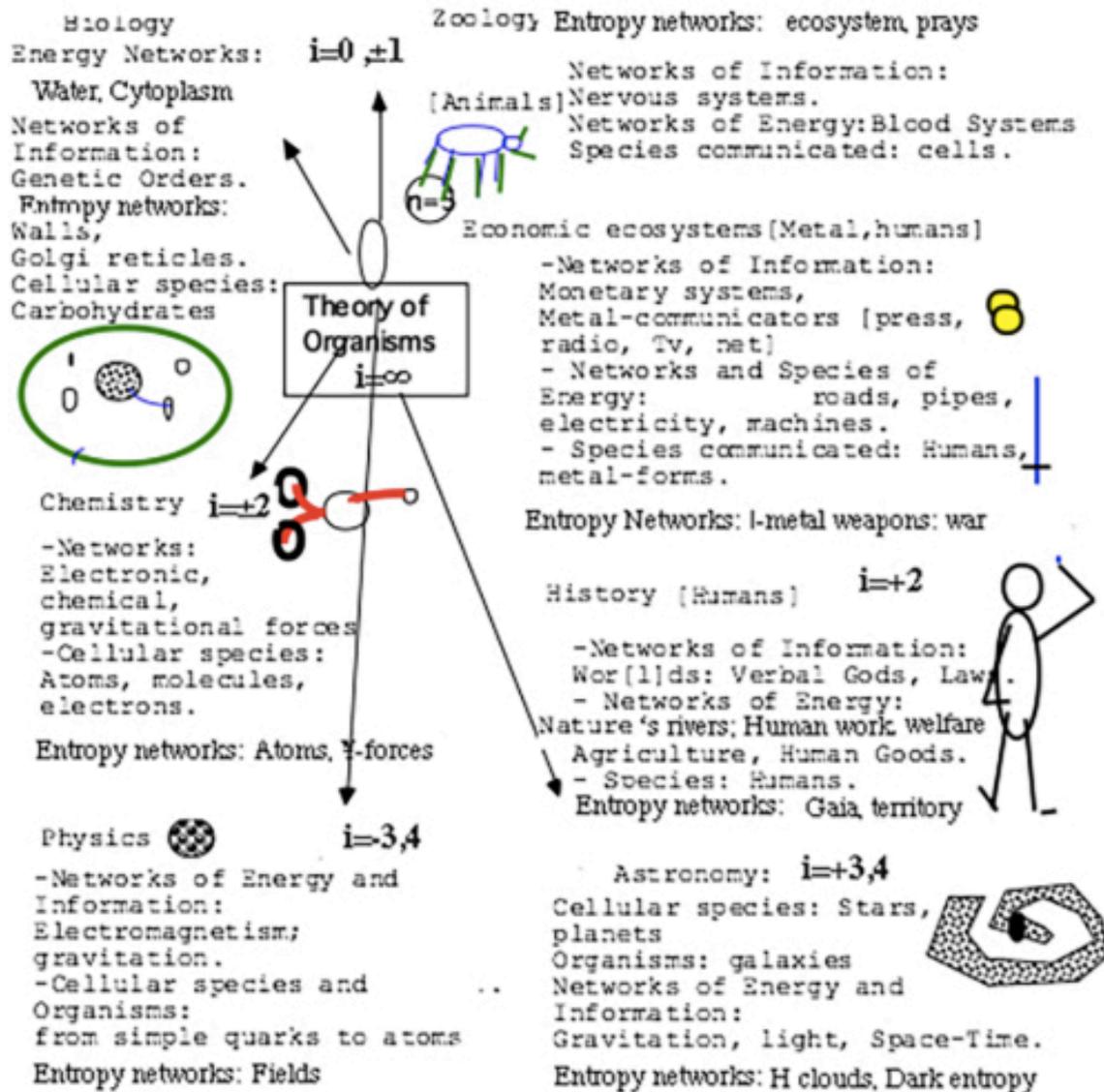
Finally we define a 4th Axiom=postulate of relative congruence, as systems to be equal must be equal in its 3 ternary parts, the outer angular momentum or 'membrane', its central Active magnitude or singularity, focus of the forces and the vital energy, enclosed within them.

We distinguish two different interactions according to the degree of equality of its ternary parts, as systems can be symbiotic, if their individual, cellular or atomic 'fractal points=parts' are similar enough, interacting through its 3 physiological 'lines=networks' evolving in parallel creating an organic plane, as those described in the next graph for each scale=science, or they can be entropic, destructive, predatory, when they are dissimilar and don't speak a common language of information to coordinate its actions, whereas the stronger system will perpendicularly break and feed on the weaker one.

Thus in praxis we assess similarity by an 'angle of parallelism' that increases social evolution into herds and supereorganisms, or perpendicularity that 'scatters' systems into entropic destruction – elements those of an entire fascinating new field of 5D topo-biologic studies that analyze in geometric terms, the vital topology and relationships between form and function in all systems of Nature from particles to organisms:

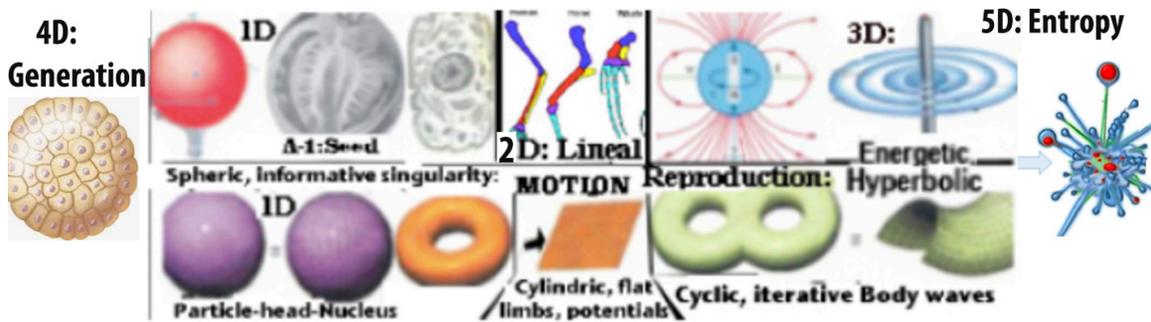
In the next graph, we see how non-Aristotelian, Non-Euclidean logic geometry defines a nested organism of the fractal Universe as a $\neg\mathbb{E}$ plane composed of 'similar fractal points' (atoms, cells, individuals) joined by 3 physiological lines=networks, whose 3 functions, distribution of locomotion, information and its 'combined' energy define the 3 conserved Dimensional motions (ab. Dimotions) of the Universe.

Topologic Space-time Organisms.



Thus vital topologic evolution' is the 'missing' mathematical sub-discipline, required to complete biology besides genetics (now fully explained as the lower plane that codes with its faster cycles the larger biologic whole) and Darwinian struggle (fully explained by the congruence principle of Darwinian dissimilarity) vs. eusocial evolution (which becomes in its own an entire new discipline) fully explained by the similarity of parallel beings that COMMUNICATE information in a code or language all can understand so they can coordinate its actions and become stronger as a whole. It will be then the last sub-discipline of 5D sciences considered in this introduction, as it will allow us to define with more precision the 5 Dimotions of reality, which through 3 'relative scales' of size suffice to define all suporganisms of the Universe in space, tracing its worldcycles of existence in time

In the next graph, as spacetime is now a dimension of space with motion, its proper science is topology that studies spatial forms with motion. So as a 4 or 5D Universe has only 3 'topological varieties', this restriction ensembles suporganisms with only 3 topologies that perform 3 clear organic functions in any physical or biologic suporganisms, which we symbolize in logic geometry with different intuitive S & T letters, to label the 5 local Dimotions that entangled together create all the fractal systems of reality *starting by:*



1D: cyclical information (Ab. §ð): the minimal ‘geometry’ of reality, a spherical particle/head or fractal point, the geometry that stores maximal form in minimal space, hence suited for ‘organic functions’ of gauging, storing and perceiving information (particles, heads).

2D: *Lineal Locomotion*, which will then move through its lineal limbs/fields (Ab. \$t) the system, as the line is the shortest distance between two points... towards a...

3D: ST; $\Sigma\Pi$: Field of Energy with its hyperbolic body-waves that iterate the forms of both the spherical particle/heads and lineal limbs/fields; as the hyperbolic topology combines the other two, so it can generate them, in the same manner Energy adds as the third CONSERVED space-time quantity the lineal and cyclical momentum of 1 and 2D.

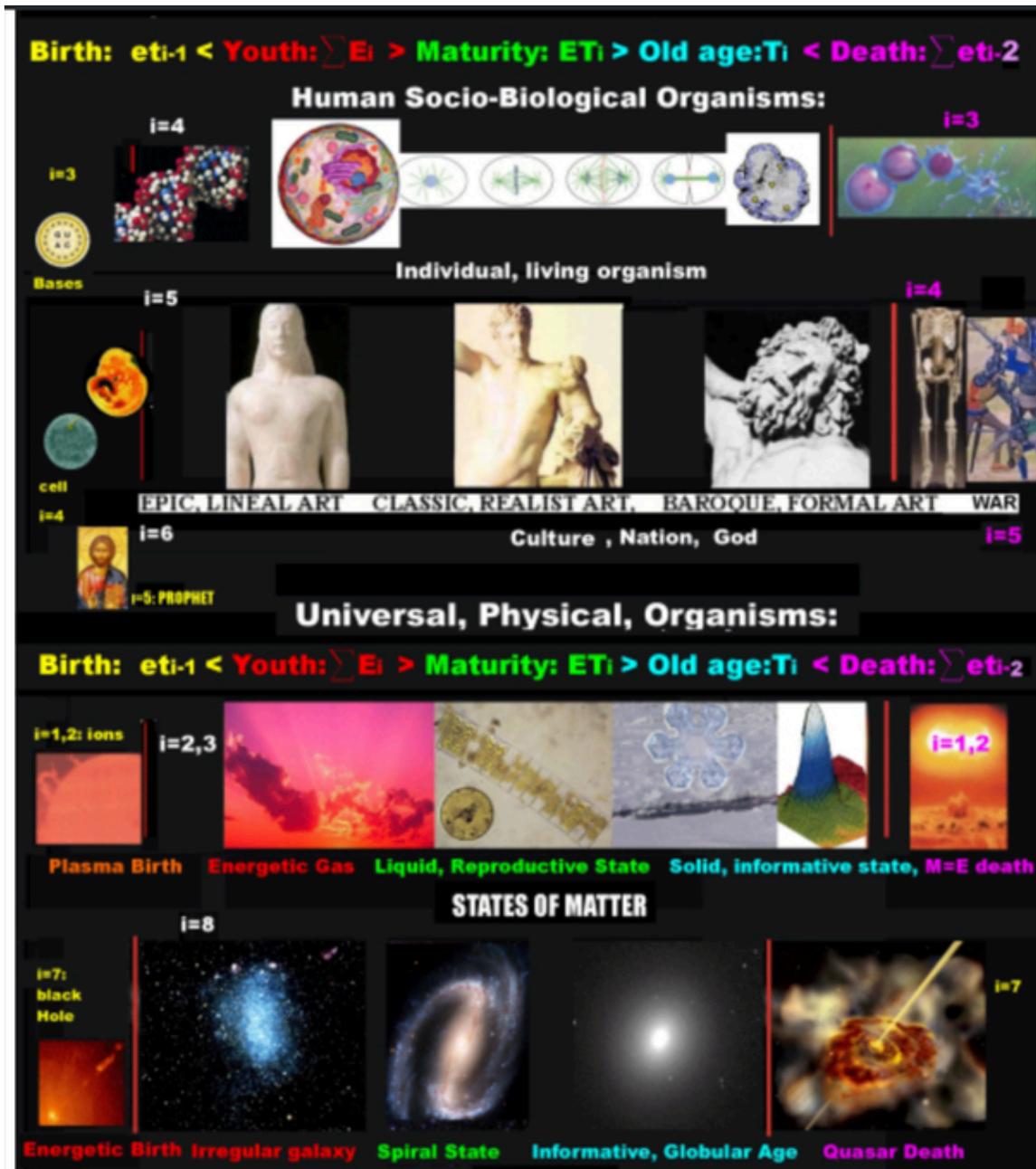
So we have in a single plane of space-time, 3 conserved ‘quantities’ that organize in space a vital topologic system and define the 3 forms and functions of its organs, themselves physiological networks that connect smaller parts into wholes; reason why we need to define two more Dimotions, ‘entropy’, made of the smaller cellular/atomic/individual parts, we shall call the 5th Dimotion (ab. ∂S) and one of social wholes, which organize those parts, we call the 4th Dimotion of social, organic evolution ($\mathcal{J}T$). Thus when we observe those 5 Dimotions simultaneously in space they create an entangled pentalogic supørganisms, in constant communication between its 3 topologic parts, in each of the 3 scales of its relative existence.

Existence as a travel through 3 scales of the fifth dimension: Worldcycles.

If we observe them in time, they have a clear sequential order, as they are generated by a first spherical 1D seed of pure information, in the $\Delta-1$ plane that will grow and evolve socially through the 4D dimension of existence, emerging into a larger Δ^0 plane as a formed body-wave whose particle-head will gauge information from a larger $\Delta+1$ world performing 5 Dimotions= actions of 1D absorption or emission of information, moving through 2D locomotions towards 3D fields of reproductive energy, using its informative communication to 4D evolve socially, into larger $\Delta+1$ new supørganisms, till the system fails to provide motion, energy and information to its limbs/fields, body-waves and particle-heads, wrinkling and warping in an old 3rd age, or become 5D entropy of a predator, exploding into a big-bang death, devolving to its disconnected $\Delta-1$ parts.

Thus in time all systems trace 2 worldcycles of existence, first in a placental friendly ‘0-1’ sphere of paligenetic 4D time evolution and then in an entropic outer $1-\infty$ open hyperbolic Cartesian world of statistical populations, mimicked in mathematics by the 01 unit sphere and the $1-\infty$ Cartesian plane, and in physics by the 0-1 quantum probability scale and the $1-\infty$ thermodynamic spatial statistic entropic plane (duality of $\Delta-0$ quantum probability formalism of particles and $\Delta+1$, statistical model of molecules):

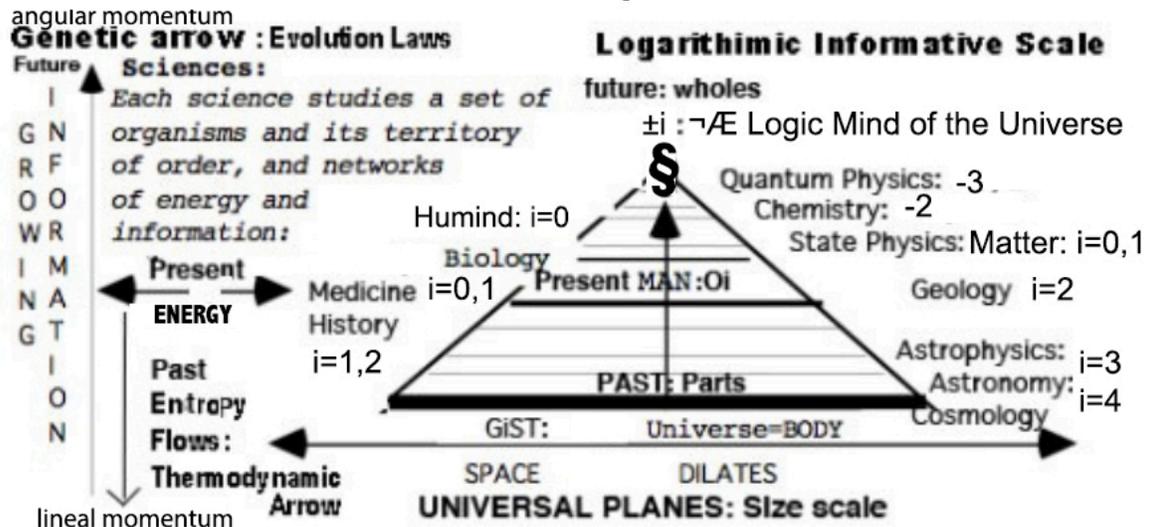
So Existence is indeed a travel through the fifth dimension, and the mere fact that all systems of nature exist through that world cycle (no longer a physical worldline in a 4D Universe as we have added a dimension of temporal ‘depth’), IS an absolute experimental proof of the existence of 5D:



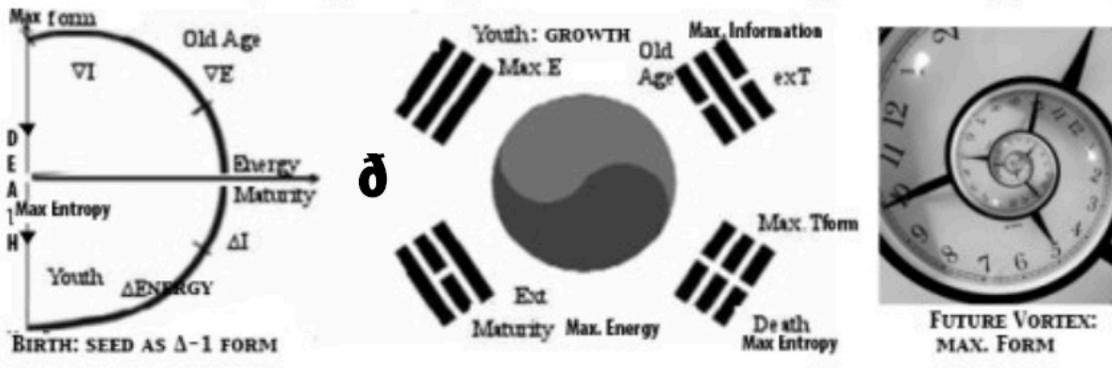
In the graph, we can see different species traveling through the fifth dimension as they complete their world cycle of existence (no longer a worldline as we have another dimension of time space, which changes the Space and Time parameters of size and speed of metabolic clocks in each of the ages the system.

In that sense the main difference when we widen our understanding of space-time with the metric equations of 5D is to be able to explain NOT only processes of time-change in a single planes of space-time, mostly due to locomotions, but process of change due to transformations in the in-form-ation of beings, related to life, organic structures and hence to solve some of the eternal existential questions about 'existence', which will be now defined easily as a 'travel between 3 scales of the fifth dimension'.

**III. WORLDCYCLES: FUTURE PREDICTABILITY OF 5 D SYSTEMS. ABCDE OF SCIENCES
SCALAR SPACE & CYCLIC TIME ADD TOPO-BIOLOGIC PROPERTIES TO ALL SYSTEMS:**



**5D scientific scales; its $S \times \delta = K$ metric define 5 D; motions generators of time-space organisms
Below the 3±1 arrows of time-space between $\Delta-1$ informative birth, back to $\Delta-1$ in entropic death
Both define the new paradigm of a complex universe made of ∞ time-space fractal organic beings**

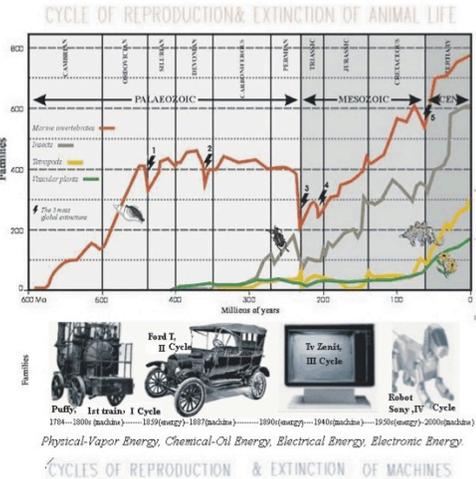
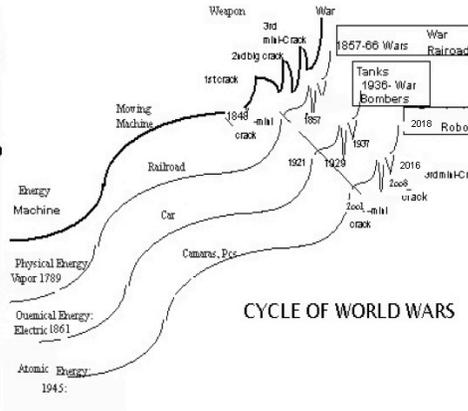
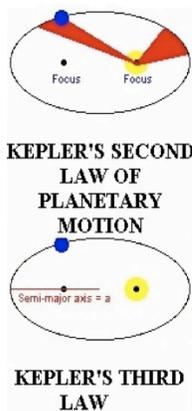


In the graph, the fifth dimension of scalar space-time and its dual arrows of entropy (studied exhaustively by physicists) and information (its inverse that evolves form) combined into conservative 'present' zero-sum cycles of energy. They are the 3 'conserved' arrows of time that create the futures of each fractal superorganism, between its 4D motion of generation in a lower $\Delta-1$ plane that emerges in an $\Delta+1$ social world to die back in a dissolving explosion of scattering entropy, back to $\Delta-1$ in the moment of death.

Below its worldcycles in terms of its 3 conserved quantities (left), first found in 'taoism' (center) in terms of yin=information and yang=entropy. On the left an 'accelerated' timespace vortex that defines in 5D physics an attractive vortex of spacetime of the quantum scale (charge) or the cosmological one (mass).

Thus the Universe has not only mathematical, spatial continuous but also logic, temporal, cyclical and organic, fractal properties derived of the more complex logic geometry of scalar space and cyclical time.

Of the many consequences of that ternary, Δ Structure of all beings, we shall consider how to use it to predict the future of its scientific species, with a remodeled ABCDE of the scientific method that studies A)ccurate Data, B)iologic causes C)yclical patterns and E)ntropic extinctive conclusions for all systems in 3 relative scales of length of space and time duration (to which we add instead of E, D)emocratic, humanist solutions for questions of social sciences.



All sciences predict the future of its species according to its repetitive causal cycles. Or else they are NOT a science. Astrology became a science when Kepler learned its orbital cycles. Bio-economics became a science when we described machines as metal organisms whose industrial r=evolution followed the human 72 years generations of the dominant industrial nations that evolved them in 4 cycles: its body-age (British, steam cycle), heart age (German, electro-chemical engine cycle), its mind age (US, tv-eye, chip-head, mobile-ear cycle) to conclude with the ensemble of robots that as virus do, when all its parts are put together will become 'alive'. In the graph, the predictability of time-cycles can be done at 3 levels:

S: Continuous, spatial mathematical simple cycles, using derivatives, proper of calculus; which is the shortest time span, as instantaneous derivatives cannot measure a 'peak' change of age/phase.

T: Discontinuous, cyclical patterns of sequential repetitive often survival actions (feeding, reproduction, death, taking place at intervals. As those actions are discontinuous, leaving long spans in-between, their patterns forecast longer time sequences. Such logic structures are based in time patterns, which as any mechanical, circadian or orbital day-year clock shows are cyclical, repetitive. But here human scientists are at loss, because Galileo studied ballistics, entropic explosions that destroy the information of reality stored in those cycles of time clocks, its patterns and frequencies, changing human cyclical understanding of biologic time for lineal, abstract time that seems not to repeat those patterns so mankind lost its capacity to predict many spacetime events, as lineal time misses *the information stored in the frequency and form of cyclical clocks, even if equations are similar: $V=s/t$ for lineal time and $V=S(\lambda) \times f(t)$ for cyclic patterns.*

Δ: Scalar, Deep Time patterns of topologic and eusocial evolution of parts into wholes – of quantum 0-1 time probabilities vs. $1-\infty$ thermodynamic populations in physics, of individuals vs. species in biology, of states of matter vs. geologic cycles in Earth, first noticed by J. Hutton, founder of geology who coined the word super organism for Gaia and deep time for its slower time cycles by virtue of its 5D metrics, $\$ \times \delta = C$ which implies that from the perspective of a smaller scale the life of its whole is much longer.

Deep time leads to a 3rd level of long-time prediction: evolutionary patterns of earth's life species, including machines used in my web at evolutionaryeconomics.wordpress.com that have predicted cyclical patterns of social organisms of history (nations) and eco(nomic)systems, including the evolutionary and re=productive cycles of stocks of machines transformed into sales=profits=valuation of its company-mothers with remarkable precision for 30 years. But as human only recognize the 1st type of predictability - calculus of instantaneous derivatives, that need a 'continuous analysis' - and have simplified cyclical time into lineal time, ignoring the scalar time of parts and wholes with its 5D metric, their capacity to forecast the future is far more reduced than a 'stientist' who understands the 3 scales *determined by the bio-topo-logic properties of 'scales', 'space' and 'time', the 3 Δst structural elements of all systems of the Universe.* L§