

A SYSTEMIC AND HYPERDIMENSIONAL MODEL OF A CONSCIOUS COSMOS AND THE ONTOLOGY OF CONSCIOUSNESS IN THE UNIVERSE

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ABSTRACT

The existence of consciousness in the universe as a consequent dimension of reality and a force able to shape material reality has to be integrated in cosmological physics theories whose stated aim is to describe the whole universe. General Systems Theory is a substantial global systemic framework that, blended with hyperdimensional physics, can ground such modeling.

It is a fact that only by positing hyperdimensions can actual physics succeed in reaching a near-unification of the four forces by blending the frameworks of Relativity Theory and Quantum Mechanics (such as in Witten's 11-dimensional M-Theory). This paper argues that the only way to integrate the dimension of consciousness in a theory of the universe is by modeling a complex hyperdimension of consciousness (or 'syg hyperdimension') consisting in complex semantic fields (operating at all levels, from the cosmic to the biosystems levels), and entwined with a hyperspace and hypertime. The well substantiated 'nonlocal' dynamics of consciousness, experimentally evidenced, show mind processes constantly violating Newtonian-Einsteinian space and time constraints, and following instead complex systems dynamics based on connectivity and meaning.

The Infinite Spiral Staircase theory (ISST) postulates that this triune hyperdimension operates at a sub-quantum scale, at the origin of the universe before the very Planck scale that allows the existence of particles (matter), as well as space and time. It is a Kaluza-Klein compact 5th dimension with a bulk pervading and encompassing our universe; the virtual particles of tachyonic speed populating it, the *sygons*, instantiate the very meaning-driven dynamics of our minds and allow for instant connectivity at a distance and two-way influences between semantic fields or minds and bio- and matter- systems.

Keywords: Systemic cosmology; General Systems Theory; Hyperdimension of consciousness; Hyperspace; Ontology of consciousness.

INTRODUCTION

If the scope and ambition of science is to account for ALL reality, that it is defined as a method of systematic and lawful description of any type of phenomenon—as we see in the very name of physics endeavors such as “Theories of Everything (TOEs)” —then physics has to account for a consequent part of ‘reality’ which is consciousness. So consequent a reality, in fact, that without consciousness, we wouldn't be able to know that there's a reality or a universe. Descartes' *cogito ergo sum* (I think therefore I am) becomes ‘I think, we think, and therefore everything becomes reality and experience for me and the others’—that is, for a ‘thinking-feeling-interacting first-person I’ and in extension for a collectivity of such ‘I’.

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Furthermore, the cosmological model presented here endorses one of the tenets of the Copenhagen interpretation of Quantum Mechanics (QM), namely that consciousness, as an active observer, has interacted with reality to the point that whatever phenomenon we observe and measure has already been modified by it—a tenet held by QM's very founder Heisenberg, and also Von Neumann who developed its mathematical framework, thus giving it a solid proof, and shared as well by other eminent QM physicists, namely Pauli, Wheeler, Stapp, and Sarfatti. Moreover, the *Infinite Spiral Staircase theory* (ISST) views the constant interaction between the universe and the conscious self-reflective minds as creating a 'participatory universe' as proposed by Wheeler (1998) and Sarfatti.

This notwithstanding, as philosopher of sciences Isabelle Stengers (1987) pointed it out, matter and material phenomena do offer a certain "resistance" to our understanding and modeling of reality; this is the reason why anomalies in the behavior of systems compared to the law's predictions, is what leads to new discoveries and a necessary complexification of the laws accounting for the observed phenomena, and even to figuring novel laws and dynamics. For example, the anomalies in the orbit of Uranus is what led mathematicians Adams and Leverrier to independently deduce the existence of Neptune. Science is only a method of observation and description of phenomena, and this method can be applied to all phenomena, as the great mathematician Henry Poincaré has shown in his 1952 book *Science and Method*. As an example, Poincaré modeled how a solution to a mathematical problem can be cooked up in the unconscious (in what he called an *incubation phase*) and emerge full-blown unexpectedly into the conscious flow of consciousness, as in the *Aha! experience* described by Koestler (1989), thus revealing what I termed ongoing parallel processing in the unconscious of a person's semantic field (Hardy 1998).

In my previous *Semantic Fields Theory* (SFT), I've modeled individual consciousnesses as semantic fields, in effect MBP complex systems (mind-body-psyche) with multilevel interconnections and inter-influence, with a connective dynamics operating non-locally via semantic similarities and driven by the *semantic (or syg) energy*. Not only intelligent beings but also all natural and complex systems (a tree, a AI system) have such a semantic field encoding their informational structure and organization. The ensemble of all semantic fields of bio- and matter- systems form the 'semantic dimension.' At that point, I had defined syg energy as being consciousness-as-energy, simultaneously semantic dynamics and energy 'of an unknown nature' yet nonlocal, that is, unbounded by the space and time constraints of EM laws. The present theory addresses the cosmological level of organization of the universe, with the semantic dimension modeled as a *syg hyperdimension* of the universe, and the nature of syg energy clarified as tachyonic virtual particles called *sygons*, issued from the origin of the universe before Planck time and that pervade and organize the syg hyperdimension and act as the connective dynamics between the syg-fields of all systems including minds.

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1. SYG ENERGY: CONSCIOUSNESS-AS-ENERGY

I.1. Physics must shift paradigm to accommodate nonlocal consciousness in the universe

Any phenomenon, process, or system can (theoretically) be described in a mathematical or physics framework. If the processes under scrutiny are so complex that no current scientific framework can account for them adequately, then this scientific domain has to evolve in order to meet this complexity. So that in order to account for complex phenomena of consciousness and mind-matter interactions, physics and cosmology have to develop a totally novel logic and a new paradigm—the materialistic paradigm in science being now revealed as inadequate and incurably limited. This has especially become evident with the 1998 discovery of *dark energy* making up about 69% of the total energy of the universe, and also *dark matter*, a good 26% of it, while ordinary matter (comprising all particles and EM fields, stars and galaxies) amounts to the meager remaining 5%.* With ordinary matter reduced to only about 5% of the universe's total energy, physicists found themselves confronted to a new paradigmatic landscape: 95% of the energy of the universe (dark matter and dark energy combined) was a total mystery, apart from the fact that it was NOT matter and matter fields. The entire domain of physics (based on a materialistic paradigm), could now be weighed to only 5% of the knowledge-system of cosmological physics. This can only launch a paradigm revolution (Kuhn 1970), and the ascent of hyperphysics (Carr 2010), or a post-materialism paradigm.

I.2. Consciousness and psyche as nonlocal, trans-spatial and trans-temporal

Let's define consciousness as 'the process (a) of attributing meaning to our inner experiences and our experience of others and the world; and (b), of interacting with our human and natural environment in a meaningful way.' Let's add that 'self-reflexive (self-referent) consciousness is the process of being aware of one's own thoughts, emotions, and behaviors, and to effect choices, act intentionally, and exert free will.' In other words, consciousness instantiates semantic processes, it is the process of creating meaning that allows us to live and think in a meaningful world. Now let's define psi as semantic processes that seem to contradict or violate Newtonian-Einsteinian physics laws (especially the inverse square law, linear time, and the speed of light limit).

- Several scientists have postulated that the psyche (or consciousness) is, in the words of Carl Jung, "trans-spatial and trans-temporal" or, in the current terminology, *nonlocal* (Jung, 1960). Among them, physicists H. Walker, B. Josephson, F. Pallikari, O. Costa de Beauregard; scientists S. Schwartz, L. Dossey, C. Hardy. And also that the psyche was transpersonal (Jung, C. Tart, S. Krippner), and/or operating between biosystems via meaningful relationships (R. Sheldrake 2009, C. Tart 1975), or via a collective psyche (R. Nelson, D. Radin).
- Several scientists have argued, following Jung and physicist Wolfgang Pauli, that the psyche could instantiate *synchronicities*, that is, meaningful correlations and coincidences at a distance in space or time (Jung and Pauli, 1955), such as physicists D. Peat (1987), J. Sarfatti (2006), M. Teodorani (2010); and systems and chaos

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theorists A. L. Combs and M. Holland (1995), F. Abraham (Abraham *et al*, 1990), C. Hardy (2004).

- Many scientists have shown experimentally that psi can be *steered by meaning and intention*, among them W. Braud, M. Schlitz, H. Schmidt, C. Honorton, R. Berger.
- Yet psi information can also be *received unconsciously* (C. Tart, R. Targ, H. Puthoff, M. Varvoglis), as evidenced by physiological responses in DMILs experiments (Direct Mental Interaction with Living Systems) by W. Braud, M. Schlitz, D. Delanoy, B. Morris.
- Other scientists view psi as an *EPR-type of entanglement*, (the Einstein-Podolski-Rosen thought experiment), a nonlocal exchange of information not mediated by relativistic spacetime; these include systems scientist W. von Lucadou, psi researchers D. Radin, B. Dunne, and physicists Bohm, R. Jahn, B. Josephson, H. Walker, and M. Teodorani.

In an interesting paper, physicist David Bohm (1986) extended his *implicate order* concept of an underlying field of interconnectedness, to state that it supersedes distinctions between mental and physical events, between self and not-self. Bohm thus explicitly allowed for nonlocal or transpersonal exchanges, such as psi phenomena, viewing these as natural expressions of the underlying interconnectedness: “The main unusual feature of parapsychological phenomena is that they generally involve what may be called a nonlocal connection between the consciousness of a person who is in one place and an object, event or person in some distant place.” This definition is perfectly matching the one given by Carl Jung (1960) about synchronicities (including psi phenomena), as meaningful coincidences between a mind and an event distant in space or time.

I.3. Consciousness-as-energy

The fact that our psyches, when strongly perturbed by shocking world-wide events, can have an unconscious influence on random-events-generators (REGs) and thus modify the distribution of randomness in field settings—has been demonstrated over two decades via the *Global Consciousness Project* worldwide experiment set by Roger Nelson (Nelson *et al*, 1996; Radin and Nelson 1989). This, for some researchers such as Nelson, Radin, Schwartz, and myself, reveals that the psyches of all human beings are not only communicating but interwoven in what Carl Jung has termed the *collective unconscious*. (Radin 2006, Schwartz 2007). In a recent 2012 experiment using an optical double-slit protocol used for studying patterns of interferences—originally developed by Young in his famous 1803 experiment—Dean Radin showed, with an outstanding probability (of $p=6 \cdot 10^{-6}$ over 250 trials) that consciousness had indeed an influence on the collapse of the quantum wavefunction. The authors (Radin *et al*, 2012) conclude by a reference to panpsychism that could explain their results “if some aspect of consciousness is a primordial, self-aware feature of the fabric of reality, and that property is modulated by us through capacities we know as attention and intention (...).”

Also, the capacity of bio-PK, the influence of mind over biosystems, has been ascertained. A large body of more than 150 experiments has established that the mind is

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able to intentionally influence simple biosystems (hermetic to suggestion) such as electric fishes or bacteria in Petri dishes (Schwartz and Dossey 2010). Now the most important trait of these bio-PK experiments is the fact that a specific influence was intended, and that the effects were in accord with the intention of subjects.

In my view, the results of experiments showing that consciousnesses (minds, psyches) can have an influence on the organization of matter and bio-systems exemplify that consciousness is an energy (of an unknown nature) because it meets the physics definition of an energy, as ‘what produces an action on matter.’ Various experiments have also shown that nonlocal communication and mind-matter interaction globally referred to as psi, didn’t involve any EM energy or fields. Moreover, the influence being intentional, it excludes that it would be effected via quantum fields given their fundamental indeterminacy, or via the vacuum given its Zero-Point Fluctuations setting constant random oscillations that some have equated to a “firewall” that would destroy any coherent signal. My conclusion is that, as psi is the epitome of dynamics of consciousness that precisely are not allowed either by QM indeterminacy, nor by EM fields and spacetime constraints, then, if we accept that consciousness-as-process is an energy able to effect an action, we have to conclude that this syg-energy doesn’t belong to spacetime, whether at the quantum void layer or at a relativistic layer.

II. MODELING THE UNIVERSE AS A HOLOGRAPHIC SYSTEM

For Bernard Carr, a cosmologist and editor of the comprehensive book *Universe or multiverse*, “Some new, deeper paradigm is probably required that will explain *both* consciousness and quantum theory. (...) A new paradigm—involving a radically different sort of physics, which I call ‘*hyperphysics*.’” (Carr 2010). He proposes in a 2003 article: a “Universal Structure” (or mind) that “can be regarded as a higher dimensional information space which reconciles all our different experiences of the world. It necessarily incorporates physical space but it also includes non-physical realms which can only be accessed by mind.” Carr uses ‘sheets’ (2D brane surfaces) to map different types of mental spaces, and a 5th D or hyperspace with a bulk. Several other physicists have modeled consciousness and/or psi via extra dimensions of the universe. Russell Targ *et al.* (1979) and Elisabeth Rauscher (1979), independently proposed an 8D model (with 4 imaginary dimensions), and with Ceon Ramon, she later extended it to 12D (Ramon and Rauscher 1980). In 1993, Sol Paul Sirag proposed a ‘hyperspace view’ of consciousness, and used a set of ‘reflection spaces’ to couple matter systems with conscious processes. Claude Swanson modeled mental energies on superposed brane sheets. Also, John Smythies, neuroscientist, proposed a 7D model with 3D of “phenomenal spacetime.” The novel strategy has been to map *the types* of mental and psi experiences on superposed 2D brane surface or sheets (Sirag, Carr, Swanson 2003), i.e. on a HD of *space*. ISST differs in the sense that it grounds a boundless HD databank as well as the sygonic connective dynamics that are steering all nonlocal mind-mind and mind-matter interconnections (the specifics of which are detailed in SFT).

II.1. Why modeling consciousness in physics as a hyperdimension?

The introduction of extra dimensions in physics stems from the need to integrate the widely different sets of laws (and their variegated measurement units) of Relativity

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Theory with QM, in order to achieve Einstein's great vision of a unified theory. The actual M-Theory (of Witten, Susskind) that integrates superstring theories and relativity and unifies three of the four fundamental forces (to the exception of gravity), needs 11 dimensions to do so (the 4 of spacetime and 7 extra dimensions). As the logician and mathematician Kurt Gödel stated in substance in his 1931 *Incompleteness Theorem* (Gödel, 1992), any system needs an added, meta dimension to ground its self-consistency. Every theoretical physicist knows that postulating extra or hyper dimensions is the only way to model a coherent and systemic universe. (Kaku 1994, 2006; Brandenburg 2011; Greene 2010)

This feeds into a second line of reasoning (already introduced in I.1.), that matter-only physics can in no way account for consciousness in the universe. Therefore, we need to build a beyond-matter physics, or, in Sarfatti's terms, a "post-quantum physics" that is nothing less than a post-materialism physics. Here also, the solution for accounting for consciousness in the universe is to postulate an extra- or hyper- dimension as a sub- or meta- system of the universe endowed with the specific nonlocal dynamics and already mapped semantic properties of consciousnesses, that is, in the case of this theory, the dynamics of syg energy and semantic fields (as previously mapped in SFT using a cognitive systems framework).

Now, a third line of reasoning tackles the universe's origin. Physicists agree, along Max Planck's seminal discovery of the quantum in 1900, that it is only when the universe has grown to be the radius of first quantum or Planck length (1.616×10^{-33} centimeter) and when it is an infinitesimal fraction of the first second old (10^{-43} s), that particles are allowed to exist, and with them space and time (and incidentally causality). So that Planck scale is a threshold launching the energy particles (radiation era) and then (at about 10^{-10} s) with the crossing of the Higgs field where these will acquire mass, the matter-dominated era. Now what interests us is the reverse logic: If there were no particles, no matter, no space and no time before Planck scale, what was there to launch the fantastic odyssey of our universe? A universe that, only an immense time after Planck scale, will suddenly, at 10^{-36} of the first second, see its size grow 10^{50} times during the inflation phase or Big Bang!

Several physicists postulate a field of information, one being also a field of form (Bohm 1980, 1986), one existing in prespace and imaginary time (the Bogdanov), one acting as a memory field and linked to the vacuum (Laszlo 2004), one implying a "back-action" and a two-way exchange of information with the evolving universe (Wheeler, Sarfatti). However, in any case, this information has to be an "active information" in the words of David Bohm—setting an alive, dynamical, eventually self-organizing, field of information. It cannot be just a dead digital information or program, because then it would need a mind to decode it, and to create the program in the first place, something called an *infinite regress* in philosophy.

Now, a fourth point that I would term the '*initial energy problem*' can be phrased thus: How in the world does the universe get the energy necessary to have, in the one hand, a temperature of $T=10^{32}$ K at Planck time, and on the other hand, to launch the radiation of the first energy particles and all that follows? This problem is abnormally hushed, it being assumed that thermal energy is transferred into kinetic energy, without clarifying precisely where from came such a gigantic thermal or kinetic energy in the first place. Yet it was raised (ever so slightly) by physicist Lisa Randall, who explained that in order to launch the radiation crossing the Higgs field (in which a gamut of energy particles will

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acquire their differentiated mass) we need, well before it, an *energy* to set up the whole process—in her terms “to jiggle” the field. Says Randall (2012, 12-3): “Essentially, when you jiggle the Higgs field—add a bit of energy—you can create an actual particle.” Moreover, this energy has to be an immense one at that, in order to make the universe suddenly bloat to 10^{50} times its size at a speed estimated by physicists Alan Guth and Andrei Linde (in their Inflation Theory) to be billion times faster than the speed of light. In fact, an alive self-organizing information and the initial energy are the most difficult unsolved problems facing cosmology.

The *initial energy problem* is an especially arduous and loaded one. One of the basic assumptions of the materialistic paradigm in science is that ‘Nothing comes out of nothing’ and thus the ‘*Ex Nihilo*’ (out of nothing) is not allowed. This is tied to the axiom that the energy is constant in the universe, only its formal and dynamical expression changes (i.e. from kinetic energy to thermal energy or vice-versa). But the physics problem is clouded by, firstly, the religious beliefs among a percentage of scientists—namely that a Creator God would have set up the creation of the universe in a cosmic instant by sheer will; and secondly by the no less dogmatic beliefs of materialistic scientists who fear that conceding even a tidbit reality to a consciousness in the universe, and even psi capacities in humans, would bring back “superstition,” or, more to the point, religion.

As unsolvable as can be such antinomy between two logical fields, opposing two widely different domains of assumptions, the comfortable and moderate scientific view held by Einstein, of an infinite and fixed universe, has been shattered by the discovery of the cosmic microwave background (CMB) in 1964, that proved that the universe had had a beginning—the Big Bang (now identified with the inflation phase). The debate has become more heated, and the *Ex Nihilo* problem is branded in various ways, with some scientists believing that a point of origin means ‘matter out of nothing,’ and thus asks for a Creator to make it happen.

These presuppositions rendered the recognition of the Big Bang a very laborious and prolonged task, given that the origin was deduced as far back as 1854 by the mathematician Bernhard Riemann, with his modeling of the curved space and Riemannian sphere, which led him to postulate a spherical and finite universe. Even the discovery by astronomer Vesto Slipher in 1912 that a dozen nebulae were speeding away from us at 932,000 miles per hour was not accepted by the American Society of Astronomy, nor was accepted at first Edwin Hubble’s 1931 discovery that there existed not one, but millions of galaxies. The Big Bang concept was firmly opposed by Einstein with all his clout, and then by the preeminent astronomers Fred Hoyle and Arthur Eddington. It was accepted only with Penzias and Wilson’s discovery of the omnipresent relic radiation (CMB) signal with a wavelength about 7.5 centimeters.

As always with paradigmatic antinomies (here between God’s creation versus natural science origin), the solution always resides in shifting the logical framework—the logical field—of the debate (Hardy, 2002). And to do so, only two simple basic statements are sufficient: (1) A point of origin (such as a Big Bang) now receding to pre-Planck scale, doesn’t necessarily imply a divine intervention. And (2), even positing a hyperdimension of consciousness at the origin doesn’t either.

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II.2. The systemic and ontological argument for consciousness as a hyperdimension

The discoveries in cosmology about the origin of the universe force us to fathom a *hyperphysical* reality before Planck scale, that is, before matter particles and energy particles could exist, and before space and time were born. Then, at the very least, this reality is a field of information—a field that would contain all possible information. Yet, as we saw, we meet a profound ontological problem: the fact that information in itself needs a mind or consciousness to read it, understand it and act on it. A system of information (such as a CD containing books) is a whole different matter than a mind reading the books saved on this CD. The CD becomes highly active information when a mind makes sense of this information by reading it, that is, when consciousness operates as a semantic dynamics. Additionally, even if a program can make operations (following internal laws) and then set machines to perform a task, nevertheless some mind had to create the machines and the program in the first place, as well as the laws that define their operations. Thus, it seems unavoidable that the universe in which thrive self-conscious intelligent beings cannot not have consciousness at its core and origin, that is, at the subquantum scale.

Some will argue that consciousness could be an emergent phenomenon springing out of ever increasing complexity. Far from denying self-organized and/or emergent processes, I deem them fundamental in nature, such as the well known tendency toward accrued complexity highlighted by Murray Gell-Mann (1994) and Stuart Kauffman (1995). Chaos theory also has shown that most complex systems in nature are ‘chaotic’ and that they organize themselves internally: they are self-organized. This means that they are able to display novel global orders—thus an emergence of new organization. Of course, minds are the most complex systems and definitely display chaotic behavior (See the theories of Combs, Freeman, Goertzel, Hardy).

In my view, emergence and the rise in information and complexity are the key to a universal force—negentropy—counteracting disorder or entropy; and this negentropic force is also consciousness.

Let’s phrase the ontological problem thus: consciousness couldn’t emerge out of a fully determined universe highly constrained by eternal laws, nor could it emerge out of a totally indeterminate and random universe. Why that? Because consciousness is a process of creation of meaning, a semantic process, and this implies a radically different type of force rooted in beingness and a meaningful or qualified interaction of this being with one’s environment. Moreover, it is a negentropic force, that is, an organizing force creating more and more information, as we see it in full fledge action in the exponential development of science and of cultures. Consciousness and the mind exhibit increasing complexity, just as many complex dynamical systems, and Gell-Mann showed that the increase in complexity was an essential trend in nature.

Another line of reasoning is to view the universe as a complex hologram: any part of the universe-hologram contains the information on the whole, whether in space or time. The Greek philosopher Plotinus, who lived in Alexandria in the third century CE, expressed clearly this conception of the universe as hologram, moreover organized by a central cosmic soul (*anima* in Latin, *psyche* in Greek). He states in the *Fourth Ennead*: "This universe (...) has in itself a *soul* (psyche), who pervades all its parts." And also: "The immaterial [the One] is as a whole in everything." (*Ennead* 6.4; Plotinus 1992). In this

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hologram-type framework, any emergent process of organization at any point in time should have its root (or meta-force) at the very origin.

Given that intelligence is a specific force, if this force is at work somewhere in the universe's hologram, then it is 'known' by all the facets in all times; then, at the minimum a sort of primeval or "proto-consciousness" has to be at work everywhere (such as proposed by philosopher David Chalmers and this ISS theory in the mid-nineties, and earlier by Leibniz, Whitehead, and Wheeler). The bottom line is, the universe can't disregard and ignore sentience, intelligence and consciousness as powerful triggers of evolution, if it knows about it. And in a holographic universe, it does know about it!

II.3. Systemic and holographic information-based models of the universe

The hologram is a type of systemic organization in which each part contains the information on the whole system, and the whole system knows all of its parts. As in von Bertalanffy's *General Systems Theory*, any change in a part or sub-system will engender a change in the whole.

For physicist David Bohm, in his *Pilot Wave theory*, the universe is organized as a hologram, with an underlying quantum field that is fully causal and deterministic though nonlocal in nature. Bohm referred to this field as the *implicate order*: a level of interconnectedness, or nonseparability, that lies at the very foundation of the universe. Then the macroscopic world (or *explicate order*) would be an "unfolding" of this deep, implicate order. Interestingly, Bohm also suggested that natural macroscopic systems such as minds are rooted in the underlying interconnectedness. As such, any system contains or "enfolds" information about the whole. In our current physics, only a hyperdimensional level in all systems (including particles) and in the universe itself, would account for such an 'enfolding' of a field of information in each system, with this field being able to communicate with the whole (such as I've developed the concept in ISST). Thus, the implicate order is a causal meta-layer, in our current terms, an extra dimension but one set as hierarchical and one-way top-down causal, organizing all systems and processes in the explicate order via pilot waves and the Quantum Potential. The implicate order is a field of "active information," an organizing force working at the universe's scale. With the insertion of the Quantum Potential (Q), Bohm added a nonlocal term to Schrödinger's equation, the Psi wavefunction central to QM. According to Bohm, the superposed states in this wavefunction are the states of the universe itself, and the universe acts as a pilot wave, a guiding force steering the organization of all systems. Let's note that the Pilot Waves theories are actually an extremely active field of research with a number of researchers doing breakthrough research, notably with the new field of "Walking Droplets" showing that some macro-systems like droplets behave as quantum systems steered by pilot waves (Couder *et al* 2005, Couder and Fort 2012).

Sarfatti, for one, building on this Pilot Wave theory, postulates "*an information-rich giant quantum coherence field [...] immune to environmental decoherence.*" This signifies that the information carried by the quantum potential acting on a system's wavefunction will not be lost through the interactions with the environment usually triggering the decoherence. Sarfatti is a strong advocate of what he calls "*signal nonlocality,*" that is, the exchange of information between two particles in an EPR-type experiment (Sarfatti, 2006, 167). John Wheeler (1990) posits a deep level of information

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(or BIT) for each system (or IT), with the concept of ‘it from bit.’ Says he: “[It means] that all things physical are information-theoretic in origin and that this is a participatory universe.” For Sarfatti, the ‘it’ is an information system particle-like and point-like, “rolling on the landscape of the BIT pilot wave,” the latter being “intrinsically mental.” Sarfatti (2006, 97) states: “Post-quantum theory, *with inner consciousness*, I posit, is when the relation between IT particle system point and the *intrinsically mental BIT* pilot wave landscape is ‘two-way’ in a self-creative adaptative spontaneously self-organizing feedback-control loop.” So that here we have a subquantum cosmic field of information, with each matter-system having its own BIT field within the whole, and moreover a two-way and creative inter-influence between the wave-informational layer and the particle-matter layer. Sarfatti’s theory also allows, just as Wheeler’s one, a “back-action” or retrocausality (first posited by Poincaré and later by Feynman), with future minds able to influence the organization of the universe, all the way to the origin. Thus are added, apart from consciousness, the very mind-matter “participatory” dynamics that was so lacking in Bohm’s Implicate Order Theory. So that with Sarfatti and Wheeler, we have a coherent systemic cosmos endowed with “inner consciousness,” self-creating and self-organizing.

Of course, such universe’s wavefunction would have to contain a gigantic amount of superposed states (all the states of all the systems in the universe), and therefore, as the theory stipulates it, it cannot collapse (because it would collapse the universe as well).

II.4. Holographic Principle and the Black Hole Information Paradox

The Infinite Spiral Staircase Theory, by setting such syg-hyperdimension at our universe-bubble origin, just pushes further back the seeds of the universe, back to the syg-information field of parent universe-bubbles, inherited at the X-point of origin as a cosmic DNA (inscribed in an Infinite Spiral Staircase or ISS, similar to a White Hole). This cosmic-scale information field of a universe-bubble (UB) is being wholly contained in its syg-hyperdimension when, at the end of this UB, all matter systems will be ‘translated’ into HD information fields, embedded in the immense databank that is their terminal Infinite Spiral Staircase (or anti-ISS) similar to a terminal cosmic black hole. Here the ISST departs from the *Theorems of Singularity* ushered by Stephen Hawking and Roger Penrose in 1970, and instead is in accord with new developments of the Black Hole (BH) theory and cosmology. (Hawking 2003, 2014)

The acute problem cosmology had to solve stemmed from these earlier Theorems that stated that all radiation and matter falling into a BH were totally lost, and thus their information too. It has been termed the *BH information paradox*, referring to the controversial loss of information-entropy that may occur when a high-entropy gas or a radiation falls into a BH; this loss of information-entropy would contradict both the second law of thermodynamics and some tenets of QM that (1) no information is ever lost, and (2) that the information about the past state of a system can always be traced back (given that it is wholly encoded in its wavefunction until it collapses, and thereafter preserved in its operator), known as the Unitarity principle.

New developments of the BH modeling occurred at a quick pace. Firstly, Hawking predicted what became known as the *Hawking radiation* going out of black holes (or falling into white holes) that was then duly observed; then Hawking, elaborating on Bekenstein’s thermodynamics formula, calculated that the *entropy of a BH* is one quarter

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of its horizon area (using Planck length). Secondly, the whole information about all matter systems that have fallen into a black hole is entirely inscribed on the *surface* of its event horizon, according to the Holographic Principle posited by Nobel laureate Gerard 't Hooft (2009), and developed further by Leonard Susskind in string theory. Thirdly, earlier in the late seventies, Charles Thorn and later Raphael Bousso had calculated that in a 2D surface (allowed in string theory), gravity emerges as a *discrete* holographic and *geodesic-like structure*, thus echoing Hawking's early modeling of the event horizon as a boundary (a surface) structured as a "*light-like geodesics*." (See Hardy 2015, 288-94). Lastly, Bekenstein used Boltzmann's original formula that was based on the number of *distinct microstates* within a system being the measure of its entropy; the more numerous the microstates, the higher the quantity of information (in bits) necessary to describe the system. (Bekenstein, 2003ab)

To conclude, it follows from the *holographic principle* that a Black Hole (and the universe as a hologram similarly), has its whole information inscribed on its boundary (as a surface); that this boundary, tied to gravity, is a *discrete* holographic and *geodesic-like structure*, precisely structured as a *light-like geodesics*.

III. ISS THEORY

III.1. The cosmic information field at the origin in ISS theory

The Infinite Spiral Staircase Theory postulates that the cosmic-scale self-aware, conscious, and dynamical information field of a universe-bubble (UB) is being wholly contained in its syg-hyperdimension both at the origin and at the end of this universe-bubble, at sub-Planck scale. The point of origin, called X-point (because of its X shape), is a point of transmission of a cosmic syg field from the parent universe-bubble to that of the new universe being born. The X point resembles a hourglass (a double funnel) and is constituted of a universe's terminal black hole (TBH) touching on its pointed tip (the TBH singularity), the tip or singularity of the white hole (WH) of a new universe's origin. Thus we have a black hole and a white hole touching at their tips, as was modeled by physicist Roy Kerr, with whatever radiation-matter had been swallowed and disintegrated by the BH, being then ejected by the WH—the whole system having a minimum of two singularities and two event-horizons (Kerr, 1963).

At the end of a UB, all matter and bio-systems are 'translated' into pure HD syg energy (active information fields) in this UB's hyperdimension, and this cosmic syg field constitutes the immense databank inscribed in its terminal Infinite Spiral Staircase (or anti-ISS). The difference with the classical BH theory, is that matter is not disintegrated by the enormous gravity and lost, but to the contrary it is translated into pure HD information. Only the hyperdimension remains both at the origin (inscribed on the ISS), and at the end of a UB (the anti-ISS). And this syg-information is what is transmitted as a cosmic DNA to the next UB.

The birth of our universe-bubble unfolds thus: After the X-point, and until the Planck scale, the universe is pure hyperdimension and a cosmic field of information inherited from our parent universe. This cosmic DNA contains the information about all systems that ever existed in a chain of parent universes, and the way these systems evolved and were optimized, resembling the molecular DNA in this respect. However the cosmic DNA is not a biomolecular substrate, but a subquantum frequency domain, with a huge

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databank of frequencies and networks of links between them encoding all viable and optimized systems. This is the reason why two dozen variables and constants of our spacetime are so exquisitely fine-tuned: they have been optimized by numerous UBs in the past. Thus ISST is an alternative to the Multiverse framework (or Susskind's Anthropic Landscape) that posits 10^{500} vacua (or universe regions), each vacuum with a different set of variables, and most of them unable to sustain solar systems, and even less so life and intelligence (Susskind, 2003). ISST has some similarities with cosmological models positing a natural selection at a cosmic scale, via universes budding from the black holes of previous universe (Jack Sarfatti, Lee Smolin 1997, 2006), these budding black holes located anywhere within the "megaverse" and even within our spacetime; and also with Penrose's model positing universes issuing from other universes with a restart of the entropy at each origin (Penrose 2010, 2014).

The systemic organization of this hyperdimension at the origin is a dynamical and self-actualizing spiral, based and steered by the logarithm of phi (i.e. that is, along the Fibonacci sequence) and enlarging exponentially as a cone from the X-point toward Planck scale, where a phase transition occurs to the quantum domain and matter-energy or spacetime region. Each $\frac{1}{4}$ spire on the golden spiral is issued from a radius on the Fibonacci sequence by the power of Pi and each radius multiplied by phi gives the length of the next bigger radius. Each $\frac{1}{4}$ spire has a specific frequency (and all of them form the near infinite frequency data-bank that is the ISS). The specific properties of such golden spiral expressing the Fibonacci sequence (known to ancient Hindu mathematician Pingala in the 3d century BCE, whose work inspired Fibonacci, and also to Pythagoras) presents a deep similarity with what will be the quantum domain, because it makes discrete leaps of frequencies (along the logarithm of phi) at each quarter of a circle, nevertheless forming an apparently seamless spiral. Now, an interesting feature of what 't Hooft found (while modeling the emitted and infalling matter-energy of black holes, using a particular string theory called 'world-sheet') is that the gravitational field of a particle falling into a BH "*assumes a universal form*" and that imprints on the event horizon "*a logarithmic tent-pole shaped bump,*" this bump acting as an informational print for the particle.** Now, isn't a golden spiral exactly tepee-shaped? And moreover it is definitely a universal form—this is why we find it is so many natural shapes, such as shells, tornadoes, and also precisely embedding the Fibonacci sequence in the Sunflower and Yellow Chamomile as calculated by mathematician Helmut Vogel; moreover, Roger Penrose found out that it is also embedded within the DNA.

The ISS at the origin is thus a triune hyperdimension, with consciousness (self-organizing Syg energy), hyperspace (Center and the creation of the spires by Pi, along phi-driven radii), and hypertime (Rhythm, and the databank of frequencies set on the geodesic lines of these quarters of spires). So that we have consciousness entwined with a linear geometric topology as a spiral (hyperspace), and a spatialized time via the frequencies on the staircase's steps (hypertime). Thus, the Center-Syg-Rhythm or CSR triune hyperdimension has a time-like (linear) space, and a space-like time, just as was predicted by Minkowski in the light cone's Elsewhere region (the outside of the cone, whereas the inside is spacetime). Furthermore, the HD discrete set of frequencies, logarithmic, will blend seamlessly with the discrete nature of the quantum scale, so that the CSR hyperdimension is coherent and consistent with quantum and relativity physics. The frequency databank, as a boundless field of information, bears not only the inherited dynamics of organization of all previous systems (including of course intelligent

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species), but also the information about all actual and possible states of systems in the all time frame (past-present-future) of our universe's spacetime. And this, because the CSR HD is beyond spacetime, able to connect with any point or system at any of its coordinates. This syg-field at the origin is a collective consciousness, ever evolving with all systems' individualized syg-fields via a constant two-way inter-influence. As I have modeled it, in the interaction of complex 'multilevel web' systems (such as minds and syg-fields) we have not only proactive and retroactive types of influence, but also synchronistic acausal ones (Hardy 2001, 2003). So that the creativity and free choices of individuals and collectivities will make us thread a free path, reinvented at each moment.

III.2. The sygons emitted at the origin forming the 5th dimension

Each quarter of spire of the ISS (with its geodesic string vibrating at a given frequency), will eject a virtual particle-string called *sygon*, carrying this particular frequency, with a velocity immensely higher than the speed of light. The nearer to the X-point, the higher the frequency and the smaller the wavelength of this virtual string. The highest frequency sygons will be speeding off from the ISS and, unimpeded, will create *the bulk* of the hyperdimension (in a Randall-Sundrum 5th dimension with a bulk). It's as a sub-bubble enclosed within this bulk that the spacetime region will later evolve, as a sub-system. The lower frequency and longer wavelengths sygons (ejected later from nearer the Planck scale) will start interfering after Planck length, thus creating a foam and the Higgs field. In this field, as the LHC team at CERN discovered it in 2014, the particles will acquire mass and will later coalesce into nuclei and atoms. In ISST, these particles and atoms will preserve at their core the sub-Planckian sygon with all its connection to the origin and a holographic but *individualized replica of the ISS*, that will be the 5th dimension of any system—a Kaluza-Klein 5th dimension, curled up and compact (below Planck scale). This replica is the syg-field of any system (from particles to bio- and stellar systems) and it will bear all the information about the evolution and life of this system, and exchange it two-way via the tachyonic sygons in a permanent 'conversation' with the ISS at the origin, and with resonant syg fields, thus emerging in spacetime as anomalous psi events.

The ISS at the origin is thus a forever dynamical collective consciousness, evolving in sync with all intelligent beings and complex systems in our universe-bubble, but still containing (as a fractal memory) the original information-field inherited from parent universes. So that it is a collective and synergic cosmic consciousness, pervading the spacetime and infusing any being and system with syg-energy and a hyperdimensional self (Sarfatti's "inner consciousness").

In the terminal black hole of a previous universe-bubble, during the process of translation from matter-systems to the hyperdimensional syg-energy, a boundless energy is built up, that will be liberated with an enormous thrust as the ISS at origin of the next universe-bubble. And then the sygons radiations will create both the cosmic-size HD bulk enclosing the spacetime region, and a sub-Planckian hyperdimension of all particles and systems, a 5th dimension in all matter and bio-systems.

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CONCLUSION

The ISS theory setting a triune CSR hyperdimension, with consciousness (Syg energy), hyperspace (Center), and hypertime (Rhythm), while not proven, leads to several solutions and features in accord with physicists' predictions. Notably, it solves the *initial energy problem* since the boundless energy and the tachyonic velocity of the ISS come from the terminal black hole of the parent universe-bubble, and are produced by (1) a huge acceleration near the event-horizon and then while rolling and rotating at ever greater speed on the anti-ISS spiral toward the singularity (the terminal X-point), and (2) the enormous excitation due to the energy shift from low matter frequencies to much higher frequencies.

Secondly, ISST solves the *information paradox* together with the total energy remaining constant (only translated from the HD sygons into spacetime massive systems and vice-versa), in that no information or energy is ever lost about any system or being that has ever existed.

Moreover, the *consistency* of the universe as a system is preserved, with the hyperdimension grounding the consistency of the spacetime region, while is maintained as well the *Unitarity principle*.

The universe is simultaneously a self-organizing, evolving and creative whole, and a cosmic collective consciousness in constant two-way conversation with each and every system, via the hyperdimension of each system. And inversely, via our hyperdimensional syg-field (our Self or soul), we converse with the whole and the initial ISS as with an arch-anima (a cosmic soul), and we co-evolve, as humanity or any intelligent species, in synergy and constant inter-influence with the matter universe. Consciousness and matter, as in Pauli and Jung's concept of *deep reality*, are blended in the Whole.

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http://en.wikipedia.org/wiki/Planck_%28spacecraft%29#2013_data_release
- ** http://en.wikipedia.org/wiki/Holographic_principle (*l.a.* 1/25/2015)

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