11

Melatonin as a Molecule of Feminine Consciousness: Tapping into Spirituality through Darkness

Deanna M Minich

Institute for Science and Spirituality, Port Orchard, WA, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
The neurohormone, melatonin, is an ancestral molecule found ubiquitously in nature and widespread throughout the body, particularly in the pineal gland and gut, where it is synthesized from the aromatic amino acid, tryptophan. It has a range of functions beyond sleep that would include circadian rhythm and hormone regulation to its action as a neurotrophic factor, protecting the neurons in a variety of mechanisms, including through its pivotal role as a conduit in the neuroglymphatic fluid. The melatonin produced from the pineal gland (referred to by mathematician-philosopher Rene Descartes in the 17th century as the “seat of the soul”) is made in darkness, and its production is inhibited by retinal exposure to artificial blue light. The rise in light pollution and disruption in planetary ecosystems has become a point of increasing concern. In some ways, this “artificial” endocrine-disrupting light might be reflective of the societal distraction away from centering within the self: the constant bombardment with blue-lit devices, phones, and screens, all of which remove one from the inner quest and journey to higher states of consciousness. Symbolically, it may suggest an avoidance of darkness or what lies therein. In medical-spiritual traditions, there is the discussion of light and darkness within religious texts, reference to yin-yang and chakras, and even within quantum physics and biophoton emissions from biological systems, thought to be associated with oxidative bursts from mitochondria. In archetypal references by Carl Jung and Joseph Campbell, the light of the Sun is often aligned with the yang or the masculine principle, while darkness is associated with the yin or feminine energy of the Moon and emotions. Along these lines of thinking, it might be that modern society's chronic “darkness deficiency” is a lack or imbalance of the feminine aspect or the energies of reflection, solitude, receptivity, and nourishment. Lacking the darkness would translate into less endogenous melatonin from the pineal gland, with greater incidence of sleep, hormone, and health disruption. Low melatonin may also have implications on deeper, spiritual levels. Without adequate melatonin, there may be a gap to attaining higher states of consciousness. The precursors to melatonin, tryptophan and serotonin, have been posited as molecules of consciousness [PMID: 26227538]. Serum levels of melatonin and serotonin were higher in meditators than non-meditating controls [PMID: 37061347]. Based on its connection to the darkness and depth of sleep, meditative states, and bodily restoration, melatonin has a pivotal role in the science of consciousness, and perhaps even altered states of awareness through dream states. In this presentation, melatonin, its biology, physics, and spirituality will be delineated through ancient wisdom and modern science.

Poster - 1 (Wed)

Keywords
Melatonin, consciousness, neurohormone, light, darkness, yin-yang, feminine principle, archetype, artificial blue light, hormone disruption, chakras, darkness deficiency, meditation

13

Making a Machine with Bespoke Consciousness

James T Beran

Independent Researcher, Montara, California, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.16]........Miscellaneous

Abstract
Can we make conscious machines? Some researchers believe we can, with computation: For example, Dehaene et al., concluding an article about machine consciousness, described their hypothesis as “resolutely computational” (Dehaene et al., 2017); others begin with theoretical computer science, implying that a programmed computer could be conscious (e.g. Blum and Blum, 2022). But humans are not programmed computers; indeed, Penrose has argued that conscious understanding is non-computable (e.g., Penrose, 2022). Let us imagine a shop selling conscious machines: Besides standard models, it might offer machines with “bespoke consciousness”, meaning consciousness made to a customer’s specifications. For example, a customer might request a machine with a specified repertoire of conscious experiences and with a specified relationship between input sensor signals and output motor signals. This work explores ways to make machines with bespoke consciousness. We begin by avoiding a possible bias favoring computation: As described here, bespoke consciousness need not employ programmed or algorithmic computation; it might even be analog more than digital. We also consider and compare general design approaches, with particular attention to “bottom-up” and “top-down” approaches. We suggest a schematic design for each of these approaches; each schematic design is based on a respective well-known hypothesis about biological consciousness: Our bottom-up design is based on microtubules, as suggested by Penrose and Hameroff’s orchestrated objective reduction (Orch-OR) hypothesis (Hameroff, 2022); our top-down design starts with machine-scale electrical and/or magnetic (E/M) patterns, as suggested by McFadden’s conscious electromagnetic information (cemi) field hypothesis (McFadden, 2020). Both designs can share a framework based on the customer’s request: For example, in either design, a machine can receive sense-like input signals and provide motor-like output signals as requested; between input and output, it has structure that performs non-conscious operations; some of its non-conscious events are involved in providing output signals in accordance with the requested input/output relationship, some correspond surjectively to conscious events in the requested repertoire, and some might do both. (Mathematically, surjective correspondence would mean that each of the conscious events has at least one non-conscious event corresponding to it. (Beran, 2023)) Looking forward to possible implementation, we find challenges: For example, an implementation of either schematic design might begin with an appropriate initial structure. One might add variations of the initial structure to provide additional output signals or to correspond to additional parts of the repertoire. Or one might add fundamentally different structures for additional output signals or parts of the repertoire. Such variations or combinations of structures might meet or at least approximate the customer’s request. But implementations like this depend on identifying or inventing the necessary structures and then combining them—this might take a long time, and success is not guaranteed. Despite this and other challenges, we hope to improve our understanding of both biological and machine consciousness by designing and implementing machines with bespoke consciousness.

Poster - 1 (Wed)

Keywords
bespoke consciousness, conscious machines, bottom-up design, top-down design, surjective correspondence

27

Consciousness Influences Epigenetics in the Development of Disease

Ingrid Fredriksson

Triquetra-Return AB, Årjäng, Sweden, Sweden

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[03.05]........Emotion

Abstract
In recent years scientists have been exploring the effects that stress and emotions have on our cells – in particular, on our chromosomes and mitochondrial DNA. What they have found is that our emotions can shape our physical reality at the molecular level. Depressed and stressed people have a shorter life span, here we get the answer to how negative emotions affect our consciousness through epigenetic mechanisms. Sometimes it can take years of mental stress, sometimes it is an unhappy childhood that causes ill health. Epigenetics is the study of the mechanisms for regulating gene activity. Such mechanisms operate on the DNA sequence and determine which genes are turned on or off: in a particular cell type, in different disease states, or in response to a physiological or even psychological stimulus. The study pays special attention to how emotions affect health. Consciousness at its simplest is "awareness or sentience of internal or external existence". In order to investigate how stress and negative emotions affect health, and to show how consciousness affects epigenetics in the development of disease, questions have been asked and interviews conducted partly with people with the disease meningioma and partly with a healthy control group. All people who have been abused physically or mentally, as children and/or as adults all agree, it impacts health. All of the people in the group who got the question “if they have been physically ill in a destructive relationship”, answered “YES” nobody answered “NO”. They all are clear, it is the life situation and how we think and feel if we will be healthy or ill. All the healthy people answered that they felt harmony and were happy with themselves. They also felt loved and seen. The majority lived in a happy relationship, while others lived alone or divorced but they almost all had someone to talk to. The results show that stress affects our health through epigenetics and consciousness. This study is an indication that consciousness influences epigenetics in the development of disease.

C - 12

Keywords
Epigenetics, Genes Turn On or Off, Meningioma, Consciousness, DNA, Gut and Brain

30

Self-fragmenting space-time foam: Emergence and state of cell consciousness

Thangamani Thangamani1, Deepavalli Arumuganainar2

1Independent Researcher, Chennai, TN, India. 2Dr MGR Medical University Tamil Nadu, CHENNAI, TN, India

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
Einstein in general relativity realised space is not nothing, and Wheeler further integrated tiny vibrations in space-time. This work, improvising on the quantum foam space-time, explores emergence of consciousness in cell and its state of connectedness. The tiny vibrations or quantum energy pulses in space-time continuum, give it an inherent energy sum of extremely high scale, as the continuum spans across immeasurable distances. In plank scale, each energy pulse occurring in space-time, is treated as a discrete event and is assigned a force or pressure operator, which is of extremely high scale, as the area is infinitesimally small (10^-35). Time in this scheme is the euclidean distance between the zero point and the peak or trough state of an energy-pressure pulse. 1. Such a space-time of energy-pressure pulsations, fractionates in plank scale as quanta, owing to energy-pressure differentials across the continuum. 2. Further the quanta produced in a locality are subjected to the discrete energy-pressure pulses, and are compacted to form a pack, the so-called fundamental particle. 3. The same discrete pressure-energy pulses while acting on the particle cause spin, or in general, degrees of freedom for motion. 4. Further, owing to the spin velocity, quanta from the periphery of the forming pack tend to escape radially; limited by the continuum’s potential energy revolve around the particle. In quantum mechanics, this fractal of the continuum is treated as two trapped wave functions namely spin and radial, in a potential well of fluctuating energy boundary. The space-time continuum is considered to be brimming with such innumerous quantum potential wells, each with spin and radial waves. The interaction between these wells, more precisely, their radial wave functions interfering, exhibits as energy transfer between any adjacent wells. The entire universe is woven with such looped quantum wells, exchanging energy, and this leads to the concept of ‘web of looped wells’. We further posit that this quantum well is the basic building block of consciousness in bio-systems. To explain, say, in case of electrical synapse, each electron with its spin generates the radial wave, collectively resulting in looped wells of electronic flow. Perturbations occurring in each well, say energy level increase or decrease is the fundamental measure of cell signal, and can be transmitted across the looped wells of the bio-system. Such a transmission potentially can continue endlessly across the web of looped wells, that spans across the entire space-time continuum. During spark of life event, the well loops of the molecules of a forming cell, emerge as cell’s consciousness. Also such a forming well loop, by-default becomes a series of nodes in the web of looped wells, enabling quantum level energy transmission from cell’s microtubule level processing to be available anywhere in the universe. Similar to synchronised oscillations in microtubules, these quantum wells can possibly be in synchronic oscillations, transmitting signals in and out of bio-systems, connecting them at quantum level. Events such as quantum coherence, superimposition etc., are possible carriers of energy transmission between cells’ consciousness and that of the web.

Poster - Remote (post)

Keywords
space-time, microtubule, spark of life, quantum foam, potential well, consciousness

38

Control Theory of Hologram Memory in Quantum Brain Dynamics

Akihiro Nishiyama1,2, Shigenori Tanaka1, Jack Adam Tuszynski3, Roumiana Tsenkova1

1Kobe University, Kobe, Hyogo, Japan. 2Yunosato Aquaphotomics Lab., Hashimoto, Wakayama, Japan. 3University of Alberta, Edmonton, Alberta, Canada

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.02]........Quantum field approaches

Abstract
We propose a control theory of hologram memory involving our subjective experience in the framework of Quantum Brain Dynamics (QBD). QBD is one of the hypotheses expected to describe memory and consciousness in a brain. It is originated with the monumental work by Ricciardi and Umezawa in 1967. Concrete degrees of freedom in QBD is water dipoles and photons as proposed by Jibu and Yasue, collaborators of Pribram who proposed the holographic brain theory. We adopt the integrated version of QBD and holography. To verify QBD theory, we propose to manipulate holograms in neocortex by external electromagnetic fields on the scalp and check whether or not our subjective experiences are manipulated. In this presentation, we adopt quantum field model of water and photons in a hierarchy representing neocortex covered by multiple layers. We show how holograms are manipulated by external fields in numerical simulations. Our approach will be applied to check whether or not our brain adopts the language of holography.

C - 13

Keywords
Quantum Brain Dynamics; Holography; Memory; Quantum Field Theory; Control Theory

43

Space cohesion and the human mind

Georges M Karma

EFFIS, Stamford, CT, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.16]........Miscellaneous

Abstract
This work represents an interdisciplinary endeavor, situated at the crossroads of physics, neuroscience and the humanities. It introduces a novel paradigm: the notion that space, as a container for matter and energy, could undergo fracturing or even rupture in places, akin to some kind of material. However, that concept differs from the historical idea of a universal ether permeating space, as contemplated in the late 19th century. Rather, it posits that space itself, in its very fabric, may be prone to fracture and potential disintegration. Thus, the necessity arises to introduce a field of cohesive forces to maintain spatial integrity. In this framework, dark matter is devoid of material substance, being instead conceptualized as an extra gravity phenomenon necessitated by the requirement to uphold spatial unity, thanks to the cohesion field. Dark energy, on the other hand, would be the energy resulting from the presence of such a field. The implications of this field extend into the life sciences, particularly in the realm of neurosciences. The complex and intricate nature of neuronal tissues suggests that cerebral space might harbor micro rips unless upheld by an immaterial network of cohesion forces. Beyond the tangible neuronal brain associated with the subconscious mind, we introduce the concept of an immaterial brain, termed the 'superconscious.' This ethereal entity is envisioned as the locus of the noble aspects of human cognition, notably abstract and creative thinking. Consequently, consciousness would be akin to an interface phenomenon between the subconscious and the superconscious. Moreover, for the superconscious to function adequately, it must rely on the energy supplied by the space cohesion field. When this energy resource dwindles, even once thriving cities and civilizations may ultimately experience decline and demise.

Poster - 1 (Wed)

Keywords
interdisciplinary, physics, neuroscience, humanities, paradigm, space, matter, energy, field, cohesion, consciousness, subconscious, superconscious

49

Unification of Light, Information and Gravity Through the the Holographic principle and Quantum information Holography

Jason D Padgett

xx, Carmel, IN, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
In the Lightscape of Quantum Information Holography (QIH), we embark on a mathematical sojourn, where the symphony of equations resonates in the unison of quantum mechanics, information, and gravity. The relation E=hf=ℏω=mc^2 stands as the cornerstone in this theoretical construct, harmonizing these seemingly distinct domains into an integrated framework. Wormhole Oscillations and Hawking Radiation: Consider a pair of entangled black holes connected by a wormhole. The Hawking radiation emitted from the boundary of these black holes is imprinted on a qubit, transferring quantum information through the oscillatory behavior of the wormhole. Equation 1: Oscillatory Behavior of Wormholes ΔΨimprint​=∫t0​t1​​(2e^iωwormhole​t)⋅ΔΨHawking​(t)dt In this equation: ΔΨimprint​ represents the imprinted quantum state vector due to the wormhole's oscillations. ωwormhole​ signifies the angular frequency associated with the oscillations of the wormhole. ΔΨHawking​(t) represents the quantum state vector of the Hawking radiation emitted at a specific time t. This equation encapsulates the dynamic interaction of wormhole oscillations and Hawking radiation, contributing to the quantum imprint on the holographic screen. Quantum State Vector and Light Needles: The imprinted quantum state vector acts as a light needle, encoding information through its angular disposition, θ. Equation 2: Angular Disposition cos(θ)=∣ΔΨimprint​∣/(ΔΨimprint​⋅q^​​) Where: q^​ represents the reference quantum state (qubit axis). This equation elucidates the probability encoding mechanism, where the cosine of the angle between the quantum state vector and the qubit axis determines the probabilistic outcomes. Encoding Acceleration and Gravity: The rate of change of the angle, θ, encapsulates the acceleration, which is synonymous with gravity in General Relativity. Equation 3: Encoding Gravity a=d^2θ/dt^2 Where: a is the encoded acceleration (gravity). By capturing the acceleration in the quantum framework through the rate of change of θ, this equation bridges the realms of quantum mechanics and gravity. Conclusion: In the QIH framework, the elegant interplay of equations unveils the intricate tapestry of the universe, where quantum mechanics, information, and gravity waltz in a harmonious ballet. The triumvirate relation, hf=ℏω=mc2, reigns supreme, echoing the unity of these diverse realms, painting a comprehensive portrait of the cosmos through the mathematical brush strokes of QIH.

C - 6

Keywords
jason, padgett, QIH, Holography, holographic, entanglement, black holes, white holes, wormholes, quantum state vector, imprint, qubit, unification, light, information, gravity, quantum mechanics, QM, Informatics, Relativity, gravity, curvature, number theory,

54

Penrose fluids and multipoint control in hydrodynamics

Ivan Kuznetsov

Novosibirsk State University, Novosibirsk, Novosibirsk region, Russian Federation. Lavrentyev Institute of Hydrodynamics, Novosibirsk, Novosibirsk region, Russian Federation

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.05]........Emergence, nonlinear dynamics and complexity

Abstract
In the present report I am going to give very simple examples justifying the necessity to introduce a new type of fluids: Penrose fluids. The main attribute of such fluids is the presence of point sources out of null-cone. Such point sources can follow from the objective-collapse theory, without violation of general relativity. The main idea to deal ith multiple point sources which in hydrodynamic limit would lead fluctuations of macroscopic parameters. Instead of the Newtonian law I use the Navier-Stokes equations. With the help of the Navier-Stokes equations and multiple point sources I will give several examples. I am going to link such fluids with active fluids where, in comparison with inactive fluids, self-propelled particles are taken into account. Such point sources are well-known from the control theory. Therefore, the objective-collapse theory can be linked with the control theory in hydrodynamics.

C - 21

Keywords
the objective-collapse theory, multipoint control theory, active fluids, the Navier-Stokes equation

56

Orch OR, Solar System Dynamics and Social Mood.

David Smolker

Independent, Tampa, Florida, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.04]........Cosmology and integrative models

Abstract
If Orch OR is fundamentally gravitational in nature, then cyclical changes in the external gravitational environment experienced on Earth might affect conscious states such as mood and its related behaviors. Life on Earth evolved against the gravitational backdrop of the Solar System--a gravitationally self-organized, resonant, periodic system of tidal forcings, torques and exchanges of angular momentum synchronized with the orbital harmonics of the Sun and planets. This system integrates with a stochastic background of gravitational waves coming from all directions generated by all elliptically orbiting celestial objects within the Universe. These gravitational waves constitute a broad, smooth background interacting with the brain as white noise, while the gravitational dynamics of the Solar System constitute a complex, narrow, well-defined, long-lived, periodic, dynamic that leads to quasi-coherent non-equilibrium exchanges with the brain. There is ample evidence that the gravitational dynamics of the Solar System, primarily the Sun and Moon, affect plant, animal, and mood-related human behavior. The monthly S&P stock index since 1800—a proxy for social mood—and the monthly rate of change of the Sun’s orbital angular momentum as it orbits the center of mass of the Solar System—known as the gravitational "Pulse of the Solar System"—are weakly, but significantly correlated (r = -.19, p < .00001). Correlation does not prove causation: a mechanism is required. The brain's fractal structure coupled with the non-linear, chaotic, and noisy character of brain-wide synaptic firing enables hierarchical, scale free dynamics making it acutely sensitive to weak external signals through stochastic resonance. Orch OR posits that consciousness resides within cytoskeletal microtubules (“MTs”). MTs function as biological vibro-electronic charge conductors. Microtubular tubulin exhibits hydrophobic pockets containing negatively charged π electron clouds. MTs hollow cores contain positively charged, proton rich ordered water (H3O+). Tubulin dimers contain regularly spaced grooves of tryptophan residues that form interconnected pathways within MTs. Tryptophan is the precursor to serotonin, the neurotransmitter that plays a key role in negative mood, depression, anxiety, economic decision-making, and social behavior in humans. Serotonin is synthesized from tryptophan through a hydroxylation process. What specialized structures in the brain might detect and transduce very weak changes in the external gravitational environment experienced on Earth so as to affect this process? Primary cilia are a strong candidate. They are a microtubule-based, ubiquitous, evolutionarily conserved organelle, functioning as biological antennae receiving information from the surrounding environment and transducing the information through signaling cascades in the cell body. Moorman and Shoor showed that primary cilia are sensitive to the slight cyclical changes in the external gravitational field generated by the Sun-Moon and may regulate the stochastic nature of gene expression in vertebrates in general in synchrony with these changes. Evidence is emerging that primary cilia play a key role in mood related psychiatric disorders such as schizophrenia, autism, bipolar and major depressive disorders. T.A. Wehr found synchronies between various lunar cycles and bi-polar patients’ mood swings. We speculate that changes in the external tidal gravitational regime experienced on Earth could induce changes in primary cilia Orch OR beat frequencies. These changes may induce changes in the rate of synthesis of tryptophan into serotonin, and its transport to and within the mood circuits of the brain. Because each human brain is essentially identical, such changes should and do appear in the markers of social mood such as the stock market. In sum, we suggest that mood is influenced in a non-trivial manner by the cyclical gravitational dynamics of the Solar System and this influence provides indirect validation of Orch OR.

Poster - 2 (Fri)

Keywords
Orch OR, gravity, solar system, microtubules, mood, serotonin, human behavior, quantum mechanics, stock market,

76

The Entropic Theory of the Emergence of Consciousness

Peter C Lugten

indepedent, Lindenhurst, New York, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.04]........Ontology of consciousness

Abstract
In this paper, I propose a solution to the Body-Mind problem that explains how discrete, directed, causally conscious living organisms emerged on an evolutionary basis at appropriate time points distant from the origin of the Universe in accordance with an accepted scientific principle known to have been active at the beginning of the Universe, through a mechanism that cannot be understood, in principle. The reason for the cloak of secrecy surrounding the emergence of consciousness is found in a seeming contradiction in the behavior of information with respect to the first two laws of thermodynamics. Information, the microstate of particles within an isolated system's macrostate, can, like First Law energy, be neither created nor destroyed, yet the information in the system, like Second Law entropy, will inevitably increase. To explain information increasing without being created, Laplace's demon is invoked, able to predict where each particle is destined. This doesn't work for emerging events like consciousness, which are unpredictable and cannot be explained by a complete understanding of their underlying constituents. They must be considered as irreversible computations, to which Landauer's principle applies. These are cycles in which bits of information, temporarily stored, are then destroyed, resulting in heat loss, and increased entropy. I propose that the increased entropy in a time-irreversible, unpredictable (emergent) isolated system requires the simultaneous deletion of information concerning the steps, or calculations, involved. A second demon, that of Maxwell, is invoked to sit astride the border between our sub-, or unconscious levels, and our conscious awareness. This ensures that the steps leading to consciousness are immediately destroyed, remaining a mystery. Implications include that entropy, not a Psychological Law, is the Universal principle generative of consciousness, that our being conscious proves that we are not predetermined, that consciousness requires the assumption of an "entropy debt" that can only be repaid by living organisms, and that entropy will therefore prohibit the emergence of conscious machines.

Poster - 1 (Wed)

Keywords
Body-Mind problem, consciousness, entropy, Landauer's principle, extension, evolution, Laplace's demon, Maxwell's demon, entropy debt, determinism, First and Second Laws of Thermodynamics, reconciliation, "convergence".

86

Consciousness from the Viewpoint of QuantumPhysics and the Vedic Metaphysics of Sankhya

Vasyl Semenov1,2, Mauricio Garrido3,4

1American University Kyiv (powered by Arizona State University), Kyiv, Kyiv, Ukraine. 2Bhaktivedanta Institute, Gainsville, Florida, USA. 3MD, Anderson Cancer Center, Houston, TX, USA. 4Bhaktivedanta Institute, Gainsville, FL, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.01]........Quantum physics, collapse and the measurement problem

Abstract
This presentation highlights current proposals for the source of conscious subjective experience both from the viewpoint of modern quantum physics and Indic philosophy – specifically, the Vedic metaphysics of sankhya. Vedic metaphysics describes perceived reality with high-level modeling, incorporating specific themes and images to reflect different conscious and cosmological aspects of reality. Conversely, modern quantum mechanical applications use low-level descriptions and consider three general approaches for understanding consciousness: consciousness as a manifestation of quantum processes in the brain, consciousness as a result of quantum processes which do not involve brain activity and consideration of matter and consciousness as dual aspects of one underlying reality. We present a comparative analysis of viewpoints with respect to qualia, the hard problem of consciousness, binding, synchrony, free will and the mind-body problem. Additionally, the perspective of artificial general intelligence (AGI) development on the basis of contemporary deep neural networks is discussed.

C - 13

Keywords
Quantum physics, measurement problem, artificial general intelligence, hard problem of consciousness, free will, mind-body problem

88

Quantum Consciousness and Intelligence: A Spectral Theory and C\*-Algebra Approach to Orch-OR Theory

Xiaolin Ge

Hybrid Algorithms, LLC, Phoenix, AZ, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.14]........Quantum theories of consciousness

Abstract
This research presents an integrated mathematical theory of consciousness, enhancing the Orchestrated Objective Reduction (Orch-OR) framework with insights from spectral theory and the rich mathematical structure of C\*-algebra on Hilbert Space. The Orch-OR theory, originally postulated by Hameroff and Penrose, posits that consciousness stems from quantum mechanical processes in the microtubules of brain neurons. A notable limitation of this model is its lack of a detailed mathematical framework to clearly demonstrate how consciousness emerges from quantum states. Our work attempts to bridge this gap by formulating a formalism that characterizes quantum processes in microtubules as elements within a C\*-algebra on Hilbert Space, employing spectral analysis to unravel the connections between quantum states and conscious experiences. In our methodology, cognitive processes and conscious states are represented as operators within a C\*-algebra on Hilbert Space. This approach utilizes the sophisticated mathematical framework of C\*-algebra to define the quantum phenomena that underlie neural activity. We specifically model the quantum states within microtubules as elements in this C\*-algebra, viewing their temporal evolution as trajectories that reflect cognitive functions and states of consciousness. Advanced spectral theory is then applied to thoroughly analyze these operators. Through the study of spectral properties, including eigenvalues and eigenvectors, we gain insights into the energy levels and dynamics of the quantum states represented by these microtubule operators. Our research hypothesizes that synaptic inputs and broader cellular activities can orchestrate changes in quantum states by modifying the spectral characteristics of microtubule operators within the C\*-algebra framework. Identifiable patterns in the spectral decomposition may correspond to specific conscious experiences, laying the groundwork for testable hypotheses to identify markers of consciousness based on their spectral signatures. Therefore, the spectral reconstruction of the microtubule operator algebra in C\*-algebra offers an analytical link between observable cognitive behaviors and the phenomenological aspects of consciousness. Our unified mathematical approach intertwines Orch-OR's concepts of quantum state superpositions in microtubules with the spectral analysis of operators within a C\*-algebra framework, thereby reinforcing the quantum mechanical foundations of consciousness. This model opens new avenues for empirical investigation by correlating spectral patterns with subjective experiences. It encourages the development of innovative experimental methods, such as advanced brain imaging techniques, to decode cognitive states by identifying their spectral signatures. Our interdisciplinary framework aims to revolutionize our understanding of consciousness, shifting the paradigm towards mathematical models that form the basis for empirical hypotheses about the emergence of first-person experiences. Future research should focus on developing falsifiable experiments that combine quantitative behavioral measurements with qualitative reports of conscious states, possibly using advanced fMRI techniques. This approach can provide multi-dimensional data to validate the correlations proposed by our spectral theory-based model. Furthermore, expanding this foundational C\*-algebraic structure with tools from dynamical systems and topology could reveal more intricate relationships. With empirical validation from neuroscience, this theory has the potential to unravel one of the most profound mysteries in science: the origins of conscious experience from the physical processes within the brain.

C - 18

Keywords
Orch-OR Theory, Quantum Consciousness, Intelligence, C\*-Algebra, Spectral Theory, Quantum Mechanics, Neuroscience, Cognitive Processes, Conscious States.

99

Macrocosmic Quantum Theory as a Tool for Tracking the Evolution of Consciousness

Carl J Calleman

Mayacal, Santa Fe, NM, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.11]........Consciousness and evolution

Abstract
Mostly, the evolution of consciousness is talked about as an individual phenomenon where someone may jump between different states. However, even if it is not common in science, it is entirely possible to look at the entire evolution of life as a function of the evolution of consciousness. This becomes even more relevant for those who believe – in line with many of the early pioneers of quantum physics– that consciousness is fundamental, or in other words a phenomenon that cannot be reduced to anything else. From such a panpsychic, or idealist, point of view, this would mean that biological evolution cannot be based on the standard model that assumes that it is based on random mutations in the DNA. As an alternative a unified perspective will be presented, where in addition to biological and cosmological evolution, various aspects of human history – technological, artistic, scientific or religious, is explained by the unfolding of cosmic waves. It is then possible to show that the entire history of the universe – going back even to a time before the Big Bang (here simply defined as the emergence of matter in the universe) – are functions of nine macrocosmic wave movements with very low frequencies. These macrocosmic waves provide negentropy boundaries that are at the origin of all forms of life and consciousness. Not only is the emergence and further evolution of various life forms aligned with shifts in these waves, but so is also at higher levels the rise and fall of civilizations and their further technological development. Hence, life and consciousness are inseparable even if their manifestations differ widely between a blue-green algae and a modern human being. At the higher levels different states of consciousness give rise to specific forms of human creativity amounting for instance to the civilizational, industrial and digital revolution. That these macrocosmic waves are quantized is shown essentially by two classes of phenomena; First, macrocosmic entanglement connecting astronomical objects on different levels of holographic interactions. Second, much as microcosmic (regular) quantum theory gives rise to a Periodic System of Chemistry, macrocosmic quantum theory gives rise to a Periodic System of Evolution, where different states of consciousness give rise to periods with different evolutionary characteristics. The different macrocosmic quantum waves very precisely determine the times of appearance and disappearance of the life forms that we know of (including those pertaining to human beings) and through this we have a model based on actual scientific data, where the evolution of consciousness drives the history of the universe. This model thus has significant consequences for all disciplines that study any aspect of evolution as well as the ongoing debate about the nature of consciousness especially between idealists and materialists.

Poster - Remote (post)

Keywords
Evolution, Macrocosmic Quantum Theory, Negentropy, States of Consciousness, Human history, Periodic System, Cosmic Waves

101

T-Consciousness and Cosmos: From Nothing to Nothing

Farzad Ahmadkhanlou1, Mohammad Ali Taheri2

1University of California, Irvine, CA, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
The definition and nature of consciousness, its origins (the ‘bang!’ moment), as well as its potential conclusion, its linkage to the brain, the qualia, the ‘Aha!’ moment, and numerous other aspects have been subjects of debates among scholars, scientists, philosophers, cosmologists, and astrophysicists for centuries. Mohammad Ali Taheri offers a distinctive interpretation of consciousness that differentiates it from other consciousness theories in neuroscience or philosophy, such as Panpsychism or Dualism. Therefore, the term ‘T-Consciousness’ is used to refer to consciousness according to Taheri’s Theory of Consciousness. Developed in the 1980s, the T-Consciousness theory suggests that various forms of matter and energy, including anti-matter, dark matter, and dark energy, emerged from T-Consciousness after the Big Shock, a hypothesis with similarities and differences with the Big Bounce hypothesis or the Conformal Cyclic Cosmology (CCC) model proposed by Sir Roger Penrose in 2010. Questions arise about the precursors to the big bang or big shock and the origins of consciousness. The concept of 'Nothing' is distinctly defined across philosophy, quantum mechanics, and cosmology and has been explored in various publications, including “A Universe from Nothing” by Lawrence Krauss, and “Everything and Nothing” by Jim Al-Khalili. "Nothing" in philosophy is not a singular, easily defined concept. It's a subject of deep inquiry and debate on the nature of existence and the possibility of non-existence. Traditionally, vacuums were perceived as voids or 'nothing'. Based on the Quantum Field Theory, the vacuum is filled with quantum foam, which is the fundamental structure of space-time and the existence of matter and energy. Removing the quantum foam from a vacuum would ostensibly result in 'nothing'. Based on the theory of T-Consciousness, on the other hand, the quantum foam itself can be quantized until it reaches frequencyless-based structures, which are the main constituents of the space-time fabric mesh. When these structures are removed, the so-called “Base Nothing” will be reached. Under the Big Bang theory, defining the boundary or ‘edge’ of the unobservable universe implies the space-time fabric is undefined beyond that, and nothing exists. This is the so-called "Ultimate Nothing" in T-Consciousness Theory. Thus, what is defined as 'nothing' based on many theories can be defined as “undefinable existence” based on the T-Consciousness theory. While ‘nothing’ has no impact on matter or energy, the “Base Nothing” and “Ultimate Nothing” have impacts on everything in the space-time fabric. Therefore, everything in spacetime fabric, from quantum foam to the unobservable universe, lies between the Base and Ultimate Nothing, which are levels of manifestation of T-Consciousness. This paper explores T-Consciousness and its interrelation with the cosmos, encompassing aspects like matter and energy, the nature of space, time, gravity, universal laws and constants, and information. Additionally, this paper evaluates the correlation between observations from the James Webb Space Telescope and the Euclid mission with the Big Shock hypothesis within the framework of T-Consciousness Cosmology. Finally, the paper delves into the influence of T-Consciousness on the evolution of life, examining its correlation with human consciousness and the interplay with quantum fields.

C - 30

Keywords
T-Consciousness, Nothing, Consciousness Theories, Applied Consciousness, Information, Space-Time Fabric, Cosmos, Cosmology, Quantum Foam

102

Experimental Evidence of Biological Dark Energy and Transfer of Information Based on Taheri’s Theory

Noushin Nabavi1, Mohammad Ali Taheri2, Firouz Payervand3, Farzad Ahmadkhanlou4, Sara Torabi5, Farid Semsarha6

1University of British Columbia, Vancouver, British Columbia, Canada. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3R&D Consultant, Tehran, Tehran, Iran, Islamic Republic of. 4University of California Irvine, Irvine, CA, USA. 5College of Sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 6Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
Consciousness is considered an elusive phenomenon due to the absence of a universally accepted definition. Taheri introduced T-Consciousness Fields (TCFs), positing the existence of non-physical entities that can be explored through scientific studies. This study delves into the results of two experiments. In the first experiment, the application of TCFs on pure water significantly (p-value < 0.05) reduced the pH value over 72 hours. Additionally, the calculation of thermodynamic parameters indicated that TCFs-treated samples exhibited lower entropy, suggesting less energy available for distribution compared to the control. Since this outcome was associated with a negligible alteration in the enthalpy value, it seems that there was no energy transfer in the form of heat. Consequently, information transmitted through these non-physical fields led to a notable change in the properties of pure water. In the second study, TCFs were applied to the HEK-293 cell line for one hour. Subsequently, the activity of the luciferase enzyme and the concentration of ATP in the TCFs-treated samples and the control were evaluated. The results revealed that TCFs treatment significantly (p-value < 0.05) increased the concentration of ATP compared to the control. Given the short timescale of this experiment, the observed rise in ATP levels cannot be attributed to the biological pathway of cytosolic and mitochondrial glucose oxidation. Taheri interprets this substantial energy production in a brief timeframe as 'Biological Dark Energy’.

C - 30

Keywords
Water, HEK-293, Information, ATP, Entropy

103

Effect of T-Consciousness Fields on the Thermoluminescence Phenomenon

Afshin Lorestani1, Mohammad Ali Taheri1, Amir Moslehi2, Firooz Payervand3, Farzad Ahmadkhanlou4, Farid Semsarha5

1Cosmointel Inc., Vaughan, Ontario, Canada. 2Nuclear Science and Technology, Tehran, Tehran, Iran, Islamic Republic of. 3Research and Development Consultant, Tehran, Tehran, Iran, Islamic Republic of. 4University of California Irvine, Irvine, CA, USA. 5Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.01]........Quantum physics, collapse and the measurement problem

Abstract
Taheri Consciousness Fields (TCFs) have garnered significant interest in recent years. To gain a clearer understanding of TCFs' efficacy at the atomic level, a precise method with special treatment is essential to unveil their influence. Therefore, leveraging nuclear science and technology emerges as one of the most effective approaches to elucidate the precise consequences of applying TCFs at the microscopic level. In this study, the impacts of three types of TCFs – labeled as 1, 2, and 3 – on the thermoluminescence (TL) phenomenon were investigated. Commercial GR-200 TL chips (LiF; Mg, Cu, P) were chosen due to their high sensitivity to ionizing radiations. To assess the effects of TCFs on the chips, a single GR-200 chip underwent annealing and irradiation with a 90Sr source three times consecutively. Each time, its response (electric charge) and glow curve were measured. Subsequently, the chip underwent three more consecutive cycles of annealing and irradiation, with TCFs applied one minute before reading. The results demonstrated a reduction in the single chip responses from 8.3% to 7.11% after the first to the third TCF treatment. Expanding the scope, a population of 15 GR-200 chips was utilized. Measurements and readings were conducted both before and after the application of TCFs, revealing a consistent reduction in responses post TCFs application. Additionally, considering statistical mechanics and information theory, the entropy of TL emission was calculated using the glow curve of each GR-200 chip. Changes in entropies before and after TCFs treatment varied across the chip population, with half exhibiting a decrease and the other half an increase. The total entropy in the population decreased, and normalizing the response and entropy changes to their corresponding time intervals highlighted that the changes after TCFs treatment could be up to 104 times higher than those before TCFs treatment. In conclusion, the experimental results confirm the significant effect of TCFs on the TL phenomenon, providing valuable insights into their impact at the atomic level.

C - 30

Keywords
Taheri Consciousness Fields, Thermoluminescence, Response, Entropy

104

Effects of T-Consciousness Fields on Cell Cycle Progression and ATP Production in Raji and HEK-293 Cell Lines under Microgravity and Earth's Gravity Conditions

Zahra Hajebrahimi1, Mohammad Ali Taheri2, Sara Torabi3, Farid Semsarha4

1Researcher of Aerospace and Biological Sciences, Tehran, Tehran, Iran, Islamic Republic of. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 4Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
T-Consciousness Fields (TCFs), conceptualized as non-physical fields by Mohammad Ali Taheri, have been the subject of previous studies exploring their application on various cell lines and ATP production. These investigations have consistently shown that TCFs can enhance cell viability and increase ATP concentration. Recognizing the detrimental impact of reduced gravity on human health during space missions, this study aimed to examine the effects of TCFs under different gravity conditions using a clinostat device to simulate microgravity (MG). In the initial experiment, the Faradarmani Consciousness Field (FCF), a type of TCFs , was applied to Raji lymphoma cells, and cell cycle progression was assessed under both microgravity (MG) and Earth's gravity (1G) conditions. Control samples without TCFs treatment were included. Flow cytometry analysis revealed that MG stress significantly induced the Sub-G1 phase by up to 42% and reduced the percentages of G1 and S phases by approximately 57% and 30%, respectively, compared to the 1G condition. Notably, the behavior of FCF-treated samples remained largely unchanged. In the second experiment, the effects of TCFs on cell cycle progression and ATP production in the HEK-293 cell line were evaluated under both 1G and MG conditions. Results demonstrated that MG increased the Sub-G1 phase by around 50%, while TCFs treatment maintained this phase's percentage at levels similar to the control in 1G conditions. Furthermore, the S phase in TCFs-treated cells was 18.5% higher compared to their clinorotated counterparts. Under Earth's gravity, TCFs induced a 29% increase in the G2 phase compared to the control. Additionally, MG significantly reduced ATP production by an average of 90%, but under TCFs, the ATP concentration was approximately two times higher than in samples without TCFs. In conclusion, this study not only reaffirms the distinctive effects of TCFs but also suggests that TCFs treatment leads to improved cell survival in reduced gravity by inhibiting apoptosis, as indicated by the reduced sub-G1 phase. According to Taheri, these observed changes in cellular behavior are attributed to information transmission through TCFs, which may compensate for the reduced gravity.

Xhibitor-Demo 1

Keywords
Taheri Consciousness Field, Faradarmani, microgravity, information, cell cycle, Raji

105

Investigating the ultraviolet-visible absorption and refraction index of pure water under the treatment of T-Consciousness Fields

Niloufar Shirani1, Mohammad Ali Taheri2, Firouz Payervand3, Farzad Ahmadkhanlou4, Sara Torabi5, Farid Semsarha6

1University of Connecticut, Hartford, Connecticut, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3R&D Consultant, Tehran, Tehran, Iran, Islamic Republic of. 4University of California Irvine, Irvine, CA, USA. 5College of Sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 6Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
UV-vis spectroscopy, an absorption spectroscopy technique, relies on samples containing species that absorb light in the ultraviolet to visible range (200 to 700 nm). Changes in the refractive index of light in an environment indicate effective intermolecular interactions contributing to the optical density of the medium. Generally, alterations in the molecular content due to the formation of solvent and soluble molecular systems result in a change in the refractive index of a solution. This study aims to explore the impact of non-physical fields, named T-Consciousness Fields (TCFs) by Taheri, on water molecules. . The investigation involves studying changes in light absorption in the ultraviolet-visible range and alterations in the refractive properties of water molecules. Results indicate that TCFs lead to an increase in the refractive index in water samples, signifying changes in the molecular movements or, in other words, an increase in optical density. Moreover, optical absorption changes between the control and TCF-treated samples (TCFs 1, 2, and 3) were analyzed in comparison to the standard deviation of absorption changes in the control for each wavelength in the visible-ultraviolet region. According to the findings, TCF1 in the visible region induced significant changes beyond the standard deviation. Additionally, absorption changes in the sample treated with TCF3 fell within the average standard deviation range of absorption values between the sample and the control. This study concludes that the influence of TCFs on water properties under light exposure is observable within a short timeframe (seconds to minutes).

Poster - Remote (post)

Keywords
UV-visible spectroscopy, pure water, Taheri Consciousness Fields, refraction, physical properties

106

Effects of T-Consciousness Fields on in Vitro Maturation of Mouse Oocytes, Mitochondrial Membrane Potential and Embryo Development Following IVF

Hadis Gharacheh1, Mohammad Ali Taheri2, Sara Torabi3, Mohammed A. Elmetwally4,5, Farid Semsarha6

1Chemical Engineering Department, New Jersey Institute of Technology (NJIT), Newark, NJ, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 4Department of Theriogenology, Faculty of Veterinary Medicine, Mansoura University, Mansoura, Mansoura, Egypt. 5Center for Reproductive Biotechnology, Faculty of Veterinary Medicine, Mansoura University, Mansoura, Mansoura, Egypt. 6Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
T-Consciousness Fields (TCFs), introduced by Taheri as non-material and non-energetic entities, have been explored for their influence through laboratory experiments. This study comprised two separate investigations to assess the impact of TCFs on in vitro maturation (IVM) of mouse oocytes, mitochondrial membrane potential, and embryo development via in vitro fertilization (IVF). In the initial experiment, the maturation of oocytes was observed under an inverted microscope after 24 hours, both in the presence and absence of TCFs. The mitochondrial membrane potential of MII oocytes was estimated using JC-1-aggregate fluorescence intensity. The second experiment evaluated the effects of TCFs on the rate of fertilization and 2PN zygotes. Results demonstrated a significant increase in the maturation of oocytes under TCFs treatment, averaging 33% higher than the control. MII oocytes subjected to TCFs exhibited a higher mitochondrial membrane potential, indicative of improved efficiency. TCFs also increased the probability of 2PN zygotes by approximately 12% compared to the control. Furthermore, TCFs treatment resulted in a notable 45% reduction in grade BC, with the percentage of grades A and B being more than two times higher than the control. In conclusion, these findings offer preliminary evidence of the positive effects of TCFs treatment on fertilization, providing a foundation for further research in this area.

Poster - Remote (post)

Keywords
Consciousness, Oocyte, Embryo, Mouse, Maturation, Fertilization

107

Effects of Faradarmani Consciousness Field on Wheat Seed (Triticum aestivum L.) in Altered Gravity

Sara Torabi1, Mohammad Ali Taheri2, Alireza Pour-Aboughadareh3, Mubshar Hussain4, Aidin Hamidi5, Zahra Hajebrahimi6, Farid Semsarha7

1College of Sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3Department of Cereal Research, Seed and Plant Improvement Institute, Agricultural Research, Education and Extension Organization (AREEO), Karaj, Alborz, Iran, Islamic Republic of. 4Department of Agronomy, University of Agriculture, Faisalabad, Faisalabad, Pakistan. 5Agricultural Research, Education and Extension Organization (AREEO), Seed and Plant Certification and Registration Institute (SPCRI), Karaj, Alborz, Iran, Islamic Republic of. 6Aerospace and Biological Sciences, Tehran, Tehran, Iran, Islamic Republic of. 7Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
The Faradarmani Consciousness Field (FCF), introduced by Taheri as a non-material and non-energetic field with detectable effects on various subjects, was the focus of this study. Given that normal gravity (NG) influences the growth and morphogenesis of plants while microgravity (MG) tends to decrease these processes, two separate experiments were conducted to investigate the effects of FCF on various growth traits of wheat plants and the geotropic response of seminal roots under altered gravity. In the first experiment, three-day-old seedlings were exposed to MG by clinostat rotation at 40 rpm for 96 hours. Growth parameters, including the number of seminal roots, root and shoot dry weight, and root and shoot length, were measured. Results showed that FCF increased the length of roots and shoots in NG compared to the control conditions by an average of 65%, while reducing the number of roots by approximately 40% in MG conditions. In the second experiment, after 20 hours, plant treatments were divided into three groups: NG, 90° turned, and MG at a speed of 20 rpm. Observations were made at 30-minute intervals within five hours by taking pictures to determine changes in root length and curvature. Results indicated that MG increased root length up to 143% compared to its initial time, while this elongation was about 186% for treated samples. The curvature pattern of clinorotated samples exhibited various fluctuations, whereas under FCF, this behavior was inhibited. In conclusion, the findings confirmed that the behavior of seedlings changed under FCF. Moreover, it was observed that FCF defined a new state in the clinostat environment, compensating for reduced gravity. This suggests that FCF has a significant impact on plant growth traits and responses under altered gravity conditions.

Poster - Remote (post)

Keywords
Microgravity; Geotropism; Wheat; Growth; Clinostat

108

Effects of T-Consciousness Fields on the Growth and the Production of ATP in Escherichia coli BL21 under Microgravity and Earth’s Gravity Conditions

Fateme Barancheshme1, Mohammad Ali Taheri2, Zahra Hajebrahimi3, Sara Torabi4, Farid Semsarha5

1University of North Carolina at Charlotte, Charlotte, North Carolina, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3Aerospace and Biological Sciences, Tehran, Tehran, Iran, Islamic Republic of. 4College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 5Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
Taheri Consciousness Fields (TCFs), characterized by non-material/non-energetic features, are suggested to have discernible effects on studied systems. This research aimed to investigate the impact of TCFs on the growth and ATP production in Escherichia coli (E. coli), serving as a model organism, under both microgravity (MG) and Earth's gravity (1G) conditions, simulated using a Clinostat device. Four experimental groups of the E. coli BL21 strain were considered, with samples lacking TCFs treatment serving as the control. The test duration extended to 24 hours. Bacterial growth was assessed through optical density measurement at 600 nm (OD600), and ATP concentration was determined by measuring the luciferase enzyme activity. Results indicated that the MG environment increased bacterial growth by up to 1.4% compared to the 1G condition. However, under the influence of TCFs, there was no significant difference between MG and 1G samples. Moreover, in comparison with the control, TCFs treatment reduced the growth rate by about 2.4% under 1G. ATP production under MG stress decreased by approximately 75% for both samples with and without TCFs treatment compared to the 1G control. Conversely, under Earth's gravity, ATP production for TCFs-treated samples was 1.7 times higher than the control. In conclusion, these findings provide evidence that TCFs inhibited the growth of the E. coli BL21 strain under both MG and 1G conditions. Despite the ATP concentration being approximately 4.7 times lower under MG stress compared to normal gravity, bacterial growth was not adversely affected compared to the 1G control. This suggests an enhanced efficiency of this strain.

Poster - Remote (post)

Keywords
Taheri Consciousness Field, Microgravity, Clinostat, Escherichia coli, ATP, Growth

109

Investigating the Effects of T-Consciousness Fields on Growth and Metabolic Activity of Escherichia coli by Respiration Activity Monitoring System (RAMOS)

Farid Semsarha1, Mohammad Ali Taheri2, Sara Torabi3

1Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
The "Field" concept is a fundamental aspect frequently employed in physical laws, such as gravitational and electromagnetic fields. According to Taheri, various T-Consciousness Fields (TCFs) with non-physical entities can be applied to all living organisms and inanimate substances. Indeed, TCFs-treated samples receive information, and as a result their behavior may change compared to the controls This study aimed to assess the effects of TCFs on the growth phases of E. coli BL21, utilizing the Respiration Activity Monitoring System (RAMOS). This device is used to gain relevant information about metabolic activity of a microorganism during shake flask fermentations. This way, oxygen transfer rate (OTR), carbon dioxide transfer rate (CTR) and respiratory quotient (RQ) were evaluated. Moreover, the Second law of thermodynamics in living systems has always been a subject of study, particularly when discussing the role of information processes in some basic biological phenomena like growth. Hence, entropy has a suitable potential to describe the processes in an open system over time intervals. The Shannon entropy, as the fundamental quantitative notion in classical information theory, has been frequently used in biology. Herein, the entropy of different phases was calculated. This allows us to understand the effects of TCFs on the entropy at the level of the bacterial population. The findings revealed that TCFs application resulted in a 44% reduction in the growth rate, extending the doubling time by up to 75%. Additionally, the entropy of the log and death phases decreased by 16.2% and 2.7%, respectively, under TCFs. These results suggest that the application of TCFs transmits information, thereby altering the growth behavior of bacteria. The observed changes in growth parameters and entropy during different phases indicate a potential influence of TCFs on the biological processes of E. coli BL21.

Poster - Remote (post)

Keywords
Growth rate, Shaking bioreactor, Respiratory quotient, Oxygen transfer rate, Carbon dioxide

110

Effects of T-Consciousness Fields on Heavy Metal Uptake by Saccharomyces Cerevisiae under Altered Gravity

Poorya Saeedloo1, Mohammad Ali Taheri2, Zahra Hajebrahimi3, Sara Torabi4, Farid Semsarha5

1Material Science & Engineering at the University of Toronto, Toronto, Ontario, Canada. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3Aerospace and Biological Sciences, Tehran, Tehran, Iran, Islamic Republic of. 4College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 5Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
Taheri introduced Taheri Consciousness Fields (TCFs) as non-material and non-energetic fields. The impact of these innovative fields was explored through various experiments, particularly focusing on the biosorptive performance of Saccharomyces cerevisiae (baker's yeast) in removing metal ions such as arsenic (As), cadmium (Cd), lead (Pb), and mercury (Hg) under microgravity (MG) and Earth's gravity (1G) conditions. A two-dimensional clinostat device was utilized to simulate a near-weightlessness environment. The experiment included four groups over a 24-hour test period, with samples without TCFs treatment serving as the control. The inductively coupled plasma mass spectrometry (ICP-MS) technique measured the content of the mentioned heavy metals. Results indicated that S. cerevisiae in both gravity conditions effectively removed these metals, with the highest elimination percentages observed for Hg (86%-95%), followed by Pb (66%-82%), and Cd (38%-55%), while the lowest removal was related to As (1%-5%). Under MG conditions, the uptake of Pb and Hg increased by about 13.5% and 9.3%, respectively. Despite the concentration of As remaining relatively constant under MG, the elimination of As increased by 133% due to TCFs treatment. Conversely, under 1G conditions, the uptake of heavy metals in contact with S. cerevisiae decreased under the influence of TCFs, with reductions of approximately 62%, 21.5%, and 8.8% for As, Cd, and Pb, respectively. These observations suggest that TCFs had a differential effect on S. cerevisiae biosorption under 1G and MG conditions. Further studies are warranted to provide more insights into the mechanisms underlying the influence of these novel fields.

Poster - Remote (post)

Keywords
Heavy metals, Biosorption, Yeast, Taheri Consciousness Field

111

Investigating the Influence of the T-Consciousness Field (1) on the Magnetic Properties of Pure Iron Atoms in Microgravity Conditions

Masoumeh Moradi1, Mohammad Ali Taheri2, Firouz Payervand3, Amir Moslehi4, Farzad Ahmadkhanlou5, Sara Torabi6, Farid Semsarha7

1IKO International Inc., Santa Fe Spring, CA, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3Research and Development Consultant, Tehran, Tehran, Iran, Islamic Republic of. 4Nuclear Science and Technology, Tehran, Tehran, Iran, Islamic Republic of. 5University of California Irvine, Irvine, CA, USA. 6College of Sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 7Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
T-Consciousness Fields (TCFs), characterized by non-physical entities, have been introduced by Taheri, and their influence can be explored on various subjects, including inanimate materials. Iron, being the most abundant element composing the Earth's mass with ferromagnetic properties, and considering its connection to the Earth's magnetic field (Geodynamo theory), has been chosen as the subject of this study. The aim was to investigate the impact of TCFs on the saturation magnetization property of iron, which can be easily evaluated. A Clinostat device was utilized to simulate microgravity (MG) conditions. The samples under TCF (1) application and the control (without T-Consciousness Field application) were made of pure iron solid powder with a grain size of about 110 microns. To apply microgravity conditions, the clinostat was rotated at 10 rpm for 24 hours. Based on the study's results, the saturation magnetization property of pure iron under MG conditions was reduced by approximately 25% compared to Earth's gravity (1G) conditions. However, in TCF 1-treated samples, this property remained almost unchanged in comparison with its value under 1G. This observation suggests that samples under the influence of TCF 1 received information that compensated for the reduced gravity, indicating a potential effect of TCFs on the magnetic properties of iron.

Poster - Remote (post)

Keywords
Iron, Microgravity, Saturation magnetization, T-Consciousness Field 1

112

Effect of different Announcers of T-Consciousness Fields and structure of TLD Dosimeters on the Influence of T-Consciousness Fields on the Thermoluminescence Phenomenon

Sina Mousavi1, Mohammad Ali Taheri2, Amir Moslehi3, Firouz Payervand4, Farzad Ahmadkhanlou5, Farid Semsarha6

1Cosmointel Inc., Chicago, IL, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3Nuclear Science and Technology, Tehran, Tehran, Iran, Islamic Republic of. 4Research and Development Consultant, Tehran, Tehran, Iran, Islamic Republic of. 5University of California Irvine, Irvine, CA, USA. 6Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.01]........Quantum physics, collapse and the measurement problem

Abstract
Previously, the impact of T-Consciousness Fields (TCFs) on the response of GR-200 dosimeters was investigated, both individually (before and after exposure to T-Consciousness Fields) and in populations of dosimeter samples. In this study, modifications were made to explore the effects of TCFs on thermoluminescence properties. It is known that TCF treatment is established through Faradarmangar’s mind or an announcer, a certified and trained individual entrusted with the TCFs. In the first part of this study, a population of dosimeters was selected, and the response to TCFs treatments was examined with different announcers, involving different individuals and genders. In the second part, to better understand the effectiveness of TCFs and their impact on the initial population, evidence was examined by changing the samples of GR-200 dosimeters from older (less used) ones to newer ones. According to the results of this study, although the intensity and magnitude of the response changed due to the shift in announcer, the overall trend of the response remained independent of the announcer. It also remained consistent with the intentions set by T-Consciousness Fields, resulting in a reduction in the response. Moreover, the results of the second part suggested that the initial population difference under TCFs treatments did not significantly affect the overall response trend of the samples. Instead, the variations were attributed to structural differences in the samples.

Poster - Remote (post)

Keywords
Announcer, TL dosimeter, thermoluminescence, GR-200, dosimetry, structure, T-Consciousness Fields

113

Effect of Pseudomonas Aeruginosa on Corrosion of C1018 Carbon Steel under the Influence of T-Consciousness Fields

Sepideh Eshragh1, Mohammad Ali Taheri2, Sara Torabi3, Farid Semsarha4

1University of Maryland, College Park, Maryland, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 4Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
Consciousness is a profoundly challenging concept in the realm of science, often deemed subjective, making it difficult to establish objective criteria for assessment. Taheri's theory introduces various T-Consciousness Fields (TCFs) characterized by non-physical entities. While these fields cannot be directly detected by instruments, their influence can be evaluated through scientific experiments. This study aimed to investigate the corrosion behavior of C1018 carbon steel by Pseudomonas Aeruginosa under the influence of TCFs. To achieve this, two types of TCFs, labeled as type 1 and type 2, were applied separately to both bacteria and Fe coupons. The corrosion process was examined under the influence of these fields, with and without the presence of a bacterial growth inducer. The results indicated that the application of TCFs to either bacteria or coupons did not yield significant changes compared to the control. However, the data distribution suggested altered behavior under these fields, indicating a clear link between the application of TCFs on different components of the system and the observed outcomes. Specifically, an increase in corrosion was noted when coupons were exposed to TCF1, while this behavior was inhibited when the same field was applied to bacteria. The presence of a bacterial growth inducer significantly decreased the weight of the coupons compared to those without the inducer, as expected. Although TCF1 showed an insignificant upward trend in corrosion for samples in tension conditions, this tendency was inhibited by TCF2 treatment.

Poster - Remote (post)

Keywords
T-Consciousness Field, Biofilm, Biocorrosion, Consciousness

115

Experimental Evidence of the Existence and Function of Mind in Plants; Evaluation of the Effect of Faradarmani Consciousness Field on Phenotyping of Strawberry (Fragaria ananassa)

Maryam Sardar1, Mohammad Ali Taheri1, Sara Torabi2, Farid Semsarha3

1Cosmointel Inc., Vaughan, Ontario, Canada. 2College of sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 3Biochemistry and Biophysics Research Center, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.11]........Consciousness and evolution

Abstract
The strawberry (Fragaria ananassa), a member of the Rosaceae family, demonstrates high adaptability to various environmental conditions. Plant phenotyping, aimed at evaluating complex traits like growth, development, yield, and resistance, serves to describe the quantitative parameters of plants. The Faradarmani Consciousness Field (FCF), a non-material/non-energetic field introduced by Taheri, was the focus of this study, which aimed to investigate its effects on strawberry phenotyping in greenhouse conditions over a three-month period. Results revealed that although FCF led to a 29% decrease in the number of live plants, it positively influenced growth parameters. The number of leaves and branches per plant increased by 16% and 13%, respectively. Additionally, three-month-old strawberry plants exhibited increased fruiting and flowering under the influence of FCF. Notably, the probability of occurrence of microbial disease symptoms in plants under FCF was lower than in the control, resulting in a one-third decrease in average microbial disease incidence over the three-month period compared to the control. While the study did not control for exposure to microbial diseases, these observations suggest that FCF may play a role in altering phenotyping parameters in strawberry plants. According to Taheri's theoretical concept of FCF, this behavior may be linked to the transmission of information through the field. Taheri proposes the existence of a level of mind in plants, facilitating such interactions. Further experiments, including controlled inoculation with microbial diseases, are warranted to validate and complete these observations. In conclusion, the study suggests that FCF has the potential to influence and modify certain phenotypic characteristics in strawberry plants.

Poster - Remote (post)

Keywords
Taheri Consciousness Field, Faradarmani, Mind of Plant, Phenotyping, Information

116

Investigation of temperature, pH, and electrical conductivity of pure water and normal saline under the influence of T-Consciousness Field 2

Firouz Payervand1, Mohammad Ali Taheri2, Farzad Ahmadkhanlou3, Sara Torabi4, Farid Semsarha5

1R&D Consultant, Tehran, Tehran, Iran, Islamic Republic of. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3University of California Irvine, Irvine, CA, USA. 4College of Sciences, University of Tehran, Tehran, Tehran, Iran, Islamic Republic of. 5Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
Water, being the most abundant molecule on Earth's surface and a fundamental component of living organisms, has been extensively studied for its physicochemical properties and how they change due to environmental variables. Normal saline, a well-known water solution with therapeutic properties, is widely available with pharmaceutical standards and represents a prevalent form of water on the planet. Previous research has investigated changes in pH and water temperature as a result of treatment with Taheri Consciousness Fields (TCFs). Although it is not possible to directly measure these non-physical fields, their influence can be recorded by designing scientific experiments. In this study, alongside these parameters, changes in the electrical conductivity of water molecules and normal saline under the influence of TCF2 were measured. The results of this research indicate that in the case of pure water, over the 8, 24, and 48-hour period of the study, there were increasing changes in pH in both the sample and control, while temperature changes were decreasing. Additionally, the changes in electrical conductivity of pure water under TCF2 treatment were found to be significant. In the case of normal saline, the trend of temperature changes was almost similar to that of pure water in the experimental groups, showing fluctuations over time. The electrical conductivity in the control and sample of normal saline was decreasing, but the sample exhibited a greater slope of changes, approximately 33% more than the control, in line with the mission of TCF2 applied in this study. These findings suggest that the physicochemical properties of water, over a time range exceeding 8 hours, show significant effects of TCF2. Among the studied properties, electrical conductivity appears to be more influenced by the studied TCF compared to other properties.

Poster - Remote (post)

Keywords
pure water, normal saline, pH, temperature, electrical conductivity, Taheri Consciousness Field 2

117

Investigation of the effect of Faradarmani Consciousness Field on multi-drug resistance isolates of Mycobacterium tuberculosis

Nahid Maddi-Goli1, Mohammad Ali Taheri2, Kamal Ahmadi1

1Department of Microbiology of Pasteur Institute, Tehran, Tehran, Iran, Islamic Republic of. 2Cosmointel Inc., Vaughan, Ontario, Canada

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
Tuberculosis remains a significant global public health concern and a leading cause of death worldwide. Faradarmani Consciousness Field (FCF), introduced by Mohammad Ali Taheri, is a concept that is not categorized as energy or matter and cannot be directly measured. However, its effects can be indirectly assessed through controlled laboratory experiments. The objective of this study was to investigate the impact of FCF on multi-drug-resistant isolates of Mycobacterium tuberculosis using phenotypic and genotypic methods. The study focused on two treatment-resistant isolates of M. tuberculosis under two conditions: the presence of FCF (treatment) and the absence of FCF (control). Two proportional methods were employed to observe changes in drug resistance patterns, and real-time PCR was used to investigate the RNA expression of drug resistance genes. Results indicated that isolate number 1, initially resistant to ethambutol, became sensitive to this antibiotic under the influence of FCF. In contrast, isolate number 2, initially sensitive to streptomycin, developed resistance to this antibiotic under the influence of FCF. In treatment isolate number 1, the RNA expression of the studied genes increased under the effect of FCF compared to the control. However, in treatment isolate number 2, the level of RNA expression of the genes showed a decreasing trend compared to the control. The findings suggest that FCF may have an impact on the drug resistance of M. tuberculosis isolates, influencing their response to specific antibiotics.

Poster - Remote (post)

Keywords
Mycobacterium tuberculosis, Taheri Consciousness Fields, Faradarmani, proportional methods, real-time PCR

118

Investigating the Effect of T-Consciousness Fields on Brain Mapping Using Quantitative Electroencephalogram (QEEG)

Ahoo Zeinali1, Monir Haddad2, Mohammad Ali Taheri1, Somayeh Hosseini Nejad3

1Cosmointel Inc., Vaughan, Ontario, Canada. 2University of Medical Sciences, Tehran, Tehran, Iran, Islamic Republic of. 3Karaj Azad University, Karaj, Alborz, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.02]........Methodologies (fMRI, EEG etc.)

Abstract
T-Consciousness Fields (TCFs), introduced by Mohammad Ali Taheri, serve as channels for transferring information from the Cosmic Consciousness Network (CCN) to various elements of existence. These non-material and non-energy fields cannot be directly identified but are observed through their impact on matter and energy. From the perspective of T-Consciousness, the human brain acts as a recorder and detector, translating mental and psychic messages into electrical, wave, and chemical signals relayed to the body. In this research, 36 people were influenced by two types of TCFs (1 and 3) with closed eyes, and their brain waves were scanned to determine potential differences in brain maps under the influence of TCFs. The results indicated that TCF 1 significantly affected all brain waves—Delta, Theta, Alpha, Beta, High Beta, and Beta 1—resulting in a reduction in Theta, Beta, and High Beta waves, and an increase in Alpha waves. The most affected anatomical regions were the Prefrontal Cortex (Fp1-Fp2), Right Frontal Cortex (F8), Left Occipital Cortex (O1), and Right Temporal Cortex (T6). Among the 95 regions associated with the primary waves, 20 exhibited significant changes in the population under therapy, with 11 points showing changes toward the standard population and 9 points diverging, especially in the High Beta waves. TCF 3 caused changes in brain waves in regions such as the Right Frontal Cortex (F8), Temporal Cortex (T5-T6), Left Occipital Cortex (O1), and Prefrontal Cortex (Fp1-Fp2). Changes were observed in Delta, Theta, Beta, and Beta 1 waves, while no alteration was seen in the Alpha and High Beta waves. Compared to TCF type 1, five out of the six different points exhibited changes in wave intensity similar to those observed in the points studied in TCF type 1. These points included FP1, FP2, O1, F8, and T6, suggesting that these points had the most significant impact under both TCFs. The results highlight the complex and distinct influences of TCFs on brain waves, warranting further comprehensive research to interpret the underlying causes of these observed effects.

Poster - Remote (post)

Keywords
T-Consciousness, Cosmic Consciousness Network, T-Consciousness Fields, Quantitative Electroencephalogram, QEEG, Brain, TCF 1, TCF 3

119

Effect of T-Consciousness Fields on Skin Allograft Survival in Rats

Farnaz Khodadadi1, Mohammad Ali Taheri2, Laleh Amani3, Hamid Lak4, Parisa Khanicheragh5, Zohreh Afsartala6

1Comprehensive psychiatric services, Santa Rosa, California, USA. 2Cosmointel Inc., Vaughan, Ontario, Canada. 3Azad University, Tehran, Tehran, Iran, Islamic Republic of. 4Azad University, Tabriz, Azerbaijan, Iran, Islamic Republic of. 5Lorestan University of Medical Sciences, Lorestan, Lorestan, Iran, Islamic Republic of. 6Tehran University of Medical Sciences, Tehran, Tehran, Iran, Islamic Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
Skin grafting is a commonly used technique in skin surgeries, but a critical concern with allografts is the risk of rejection. To address this issue and enhance allograft survival without side effects, Mohammad Ali Taheri founded the Taheri Consciousness Fields (TCFs). Although TCFs are neither matter nor energy, their effects on objects can be investigated through controlled experiments. This study aimed to explore the effects of two TCFs (1 and 3) on skin allografts in rats. Twenty rats were randomly divided into two groups: the control group and the group receiving tacrolimus. The group receiving tacrolimus after surgery was further divided into two subgroups—one affected by TCFs (1 and 3) and another unaffected. After two weeks, histologic and macroscopic observations were performed on all groups. The results indicated that skin transplantation in TCFs treated rats was successful, leading to the formation of a new epidermis. Additionally, sebaceous glands and a high number of capillaries were detected in the dermis layer. It appears that TCFs, as a qualitative treatment, may serve as an option to reduce the probability of graft rejection. However, further research is needed to elucidate the alleviative effects of TCFs on graft survival and to understand better the mechanisms involved in this potential therapeutic approach.

Poster - Remote (post)

Keywords
Taheri Consciousness Fields, Skin Allograft

124

Mitochondria as Fundamental Tubulars of Brain Consciousness and Supporters of Diverse Phenotypic Meta-Brain Tumors

John F. De Carlo1, Michael R. Pryzdia2

1Hofstra University, Hemstead, New York, USA. 2Arizona State University, Phoenix, Arizona, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.11]........Cellular and sub-neural processes

Abstract
With 19th century mechanistic materialism supported by positivism and 20th century mathematical energetic models predicated on dynamic and complex energy flows both at our theoretical and procedural backs, the 21st century is poised to reckon with the seemingly non-computational depths of consciousness and intelligences -- but how best to proceed in terms of scope and methodology? As Whitehead might suggest, consider the “stubborn fact” that human consciousness ceases within seconds after the absence of energetic blood flow supplied by mitochondria’s main function of transforming nuclear energy found in food and air into a chemical charge/chemical energy of ATP by converting membrane potential via electron transport. In this respect, as an organelle, mitochondria/mitotypes found in hundreds of cell types, except red blood cells, are a type of organelle most closely resembling the brain. Moreover, similar to the Integrated Information Theory of Consciousness, their sub neural social networks consisting of chemicals, hormones and ions, along with tubular fission and fusion, perform various neurological functions and process information both within and between diverse brain cells, including neurogenesis, gene regulation, hormone production, as well as immunological wound healing. In contrast, we explore a type of Global Work Station model of the phenomenon of cancer cells, existing as a quasi-meta-brain within the human brain, appropriating not only mitotypes but the wound healing protein L1CAM found exclusively in the brain, tricking the immune system to support its metastatic diversity. In fact, via the cutting-edge procedural tool of spatial multi omics which allows for the tracking of not only transcriptional, but epigenetic post translational protein and metabolic dynamics across organ tissue, these various omics reveal niche construction to be systematically biased toward environmental changes that are well suited to the constructor’s phenotype, or that of its descendant’s fitness – via gene flow, drift, or selection. All this dramatically results in several diverse brain tumors within a single human brain, all of which rely not only on neurological nutrients but specialized brain networks, for their own diverse tumor developments. In sum, leveraging and synthesizing the functional roles that mitochondria play both in normal brain cells, along with those of diverse cancerous brain tumor tissues, we offer a new theoretical methodological scope of the fundamental and non-computational depths of human consciousness, whereby consciousness emerges from the multitude of mitochondria functions both within and between bodily-organ oriented cells, and how cancer cells integrate different brain regions and their specialized neural networks for their diverse and adaptive phenotypic tumor developments.

Poster - Remote (post)

Keywords
mitochondria tubular, phenotypic cancer, meta-brain tumor, human consciousness

128

How We Can Test the Effect of Quantum Observer’s Love of Chemistry on Results of Chemical Experiment

Anatoly D. Goldstein1, John A. Shuster2

1MGH, Boston, MA, USA. 2Independent Contractor, Las Vegas, NM, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.01]........Quantum physics, collapse and the measurement problem

Abstract
The study of complex systems revealed crucial importance of holistic approach to science. It is argued that truly holistic science must include the concept of love, which fundamental role in consciousness is apparent from NDE research (see Pim van Lommel’s 2001 paper in peer-reviewed journal "Lancet", cited 1126 times) and spiritual experiences (Federico Faggin, "Silicon…", 2021, chapter 5). Per Immanuel Kant, we can have cognition only within the realm of experience; empirical objects in this realm are mind dependent. “Mind-dependence” means that we cannot plan an experiment on matter, nor accomplish it, nor write a paper stating the results/conclusions -- without the ongoing flow of thoughts and emotions. Therefore, the idea of the existence of matter independently from our mind-heart is really just a long assumed (probably false) hypothesis. This was acknowledged in the "Manifesto for a Post-Materialist Science" (2014) currently signed by over 450 scientists. Kant’s Transcendental Idealism and Fractal Theory of Quantum Consciousness naturally combined with Cosmic Law of One are possible alternatives to the hypothesis of materialism. While the first author was an undergraduate student at the chemical department of the Moscow State University in 1971-1976, he witnessed considerable positive dependence of the output of experiments on the experimenter’s love/affinity for the chemical experiments. Strict adherence to the textbook instructions often did not seem to help the author enough to get good experimental results, possibly because of his “lack of love” for experimental chemistry. However, those students professing a greater liking/affinity for the experiment, obtained higher outputs. Part of the students had neutral relationship with chemistry and got roughly average results. This background has led the authors to offer guidelines on testing the Observer/Performer love to experiment effect on the results of chemical experiment, how/where new experiments could be conducted by partitioning all experimenters into 3 groups based on anonymous questionnaires before conducting the experiment: 1 - those who like the experiment, 2 - those who do not, 3 - those who are neutral (the control group). Then the experimental results of each group could be checked statistically against the hypothesis, H0: Love/Affinity of an experimenter affects result of an experiment. The assumptions supporting H0 include: - The state of the whole system |Ψw⟩ is a vector in complex vector Hilbert space which components encapsulate the observer/performer’s quantum mind, lab equipment, chemical reagents, physical parameters of the system (temperature, pressure, humidity, Earth’ magnetic field, etc.). |Ψw⟩ describes a superposition of all potential outcomes of the quantum chemical experiment existing in the Hilbert space. - The observer’s quantum mind is private; its imaginary components are unknown to other observers. An assumed mechanism behind H0 includes two main options: - In case of observer's lack of love to chemistry, his quantum mind affects the probabilistic collapse of the whole system |Ψw⟩ to the points on the real space axis representing low outcomes of the chemical experiment. - The observer’s love to experiment represented by his private quantum mind conditions |Ψw⟩ collapse to the higher outcomes of the quantum chemical experiment.

C - 21

Keywords
Complexity, Hypothesis of Materialism, Kant's Transcendental Idealism, Love as a Concept of Holistic Science, Experimental Quantum Chemistry, State Vector of the Quantum System in Hilbert Space, Fractal Theory of Consciousness, Cosmic Law of One

129

Spirals of Light and Life Study of TRPV1, CISS, Homochirality, and DTD Enzyme

Charles H Ernst

UCCS, Colorado Springs, CO, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.09]........Biophysics and coherence

Abstract
The TRPV1 Quartet is a family of Cannibinoid / Vanilloid receptors: CB1, CB2, CB3 (GPR55), and TRPV1. I will describe how the TRPV1 ion channel uses Ca++ and H+ ion signals to control nearly all processes in the body. Then discuss the link between the TRPV1 Quartet and cognition and consciousness. Describe Chirality-Induced Spin-Selection (CISS) effects and show how spin selection explains the homochirality of life and all the proteins in our body. Then explain how these homochiral proteins transmit electrical and light waves with 100 % efficiency and describe the benefits of this efficient transfer of information and energy. The Glymphatic system removes metabolic waste heat, solids, and toxins from the brain, eyes, and spinal column. Cerebral Spinal Fluid (CSF) flow carries these waste products away from neurons and delivers nutrients, oxygen, and immune proteins. This system of waste removal and nutrient delivery will be described and discussed. D-aminoacyl- tRNA deacylase (DTD) is an enzyme that hydrolyzes D-amino acids attached to tRNA molecule. This prevents D-amino acid incorporation into proteins. DTD is a key feature that keeps D-amino acids away from the ribosome to allow only L-amino acids to be incorporated into proteins. Ultra-processed Foods and Medicines are primarily Achiral. They mostly consist of D-Amino Acids (DAAs) and Cross-linked Amino Acids (CLAAs). The human body cannot use DAAs and CLAAs and they need removal. The lymphatic system, liver, and kidneys remove then from the body, The glymphatic system removes them from the brain, eyes, and spinal column. The glylmphatic system can be overwhelmed by an excess, which leads to many problems with Cognition, Consciousness, Neuronal Health and Wellness.

C - 30

Keywords
TRPV1, vanilloid, CISS, homochiral, achiral, glymphatic,, DTD enzyme, D-amino acids, Cross-linked amino acids, consciousness, neuronal, health

133

Fetal Sentience as Parturition Trigger

Richard J. Harrington

Independent Researcher, Tucson, Arizona, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.20]........Neurobiological theories of consciousness

Abstract
The Sentience-As-Disturbance (SAD) Theory, based on insights from Cook et al. (2014), outlines how biological sentience might have first emerged in primitive animals as a disturbance caused by external threats to cell integrity, with natural selection "turning bugs into features" by incorporating both sentience and threat components into organismal function (Cook ND, Carvalho GB, Damasio AR. 2014. From membrane excitability to Metazoan psychology. Trends in Neurosciences 37, 12: 698-705). The Polyvagal Theory (PVT) explores how, in the transition from reptiles to mammals, "the autonomic nervous system was repurposed to suppress defensive strategies in order to support and express sociality. The product of this transition was an autonomic nervous system with capacities to self-calm, to spontaneously socially engage others, and to mitigate threat reactions in ourselves and others through social cues." (Porges SW. 2021. Polyvagal Theory: A biobehavioral journey to sociality. Comprehensive Psychoneuroendocrinology 7: 100069.) The Fetal Prosocial Priming Thesis (FPPT) combines insights from these theories to make the case that these ancient phylogenetic processes are "recapitulated" during human ontogeny. The claim is that periodic strategic rationing of maternal metabolic support to the fetus might activate fetal faint-fight-freeze-flight defense responses that ultimately prepare the fetus for both parturition and post-partum sociocultural development. Partial shutdown (hypoarousal "faint") can conserve resources if maternal nutrient, oxygen, or other support are insufficient, but "playing dead" for too long might be interpreted as failure-to-thrive, leading to fetal death. Agitating for support (hyperarousal "fight" or "freeze") can signal that fetal vitality requires more support, but prolonged hyperarousal can exhaust resources too quickly. The parasympathetic ventral vagal complex (VVC) begins developing in early third trimester, providing a more nuanced modulator of allostatic challenges. According to the PVT, it is essential that the fetal VVC is sufficiently mature at birth to attenuate the stress of parturition, but additional myelination and maturation are required during early infancy: The VVC is a pivotal coordinator of heart rate, breathing, eating, vocalization, and facial expression and mimicry during visual, auditory, and tactile interactions with caregivers. The FPPT outlines how the synergistic emergence of sentience and the VVC might help the fetus "agitate" for "flight" (parturition) in preparation for post-natal enculturation. It is proposed that the fetus is still in the SAD phase, meaning that the fetus is "paradoxically conscious" state in which moment-to-moment conscious pulses have yet to be incorporated into cognitive-affective continuity and conscious access to memories. As such, sentience-as-disturbance, and not conscious intent, is a key parturition trigger. VVC-induced bradycardia prevents this "agitation for flight" from causing over-reactions during both the 'in utero' separation of nascient fetal sentience from maternal interoceptive sentience and the perinatal birthing process.

Poster - 1 (Wed)

Keywords
Sentience, Fetus, Parturition, Polyvagal Theory, Evolution

136

Attention: The Silent Subtle Component of Quantum Consciousness, Vedanta Meditation, and Artificial Intelligence

Mithun Paul

University of Arizona, Tucson, AZ, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.06]........Machine consciousness

Abstract
Practitioners of advanced Vedanta philosophy based meditations know that one important part of all meditation techniques is attention. Meanwhile, in Quantum Consciousness world, as per the ORCH-OR theory, attaining consciousness is defined as a hierarchical process leading to the `Bing` moment, when the person wakes up with full consciousness and attention to his surrounding and present. In this work we extend this and show that attention has been a very subtle but quintessential component in several recent advancements that occurred in science and technology in the last decade. For example one of the seminal works that recently launched the current Artificial Intelligence boom, including that leading to the creation of ChatGPT, was titled "Attention is all you need". Similarity in theoretical physics, a huge paradigm shift towards processes and quantum computation was recently launched with the invention of ZX Calculus, in which we show several subtle parallels between quantum consciousness and Vedic philosophy exists. Further, we hypothesize that all these advances mankind made recently, knowingly or unknowingly incorporating attention, wasn't an accident and is in-fact leading us towards a moment of Technological Singularity by 2030.

C - 13

Keywords
attention, quantum consciousness, artificial intelligence, theoretical physics

157

Consciousness as space and Infinity in a Bottle.

Uziel Awret

Inspire Institute, Alexandria, Va, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.04]........Ontology of consciousness

Abstract
The sages of old claimed that each of us is a universe of sorts, at least from the inside! Following Emanuel Levinas ethical metaphysics in which acknowledgement of the other’s infinite nature brings about acknowledgement our own infinite nature. Levinas also whimsically intimated that ‘consciousness of space is the space of consciousness’. At a minimum, such 'Island Universe' spaces should possess the next properties: a) It should be constituted like a medium; where a medium is a stage of sorts that enables the faithful realization of information, perhaps in the same way that elementary particles realize the quantum field theoretic vacuum, itself mathematically identical to the way in which the quasi-particles of condensed matter physics realize the ground state of the many-particle system. b) It should be enduring and robust to local fluctuations. A medium that comes to mind is a quantum computer with an error code, preferably a non-local one. The brain, another medium, employs such non-local error correction codes (like in the operation of the essentially non-local grid neurons). c) It should be a geometric space, that is, possess a metric that can sustain enduring, yet erasable, differences. d) It should be infinite from within yet finite from without, a bit like an Anti de Sitter space (AdS), or what Juan Maldacena described as ‘Infinity in a Bottle’; perhaps the only way of overcoming our inability to place consciousness in space and time like all else that exists. e) It should loosen up the connections between necessity and identity (Levine 2019) allowing things to be different then themselves. f) It should help relate the structure of the conscious mental state to its physical correlates (Similarly to a Gabor Transform). g) It should help solve the mental causation and overcome Chalmers' Meta-Challenge. I will argue that that there is a physical scenario, albeit a strange one, that not only satisfies a-g but also deflates the conceivability argument without deflating some other essential problem intuitions. Here I will consider a scenario in which the NCC harbors massive conformal entanglement that according to the Holographic Correspondence principle (AdS/CFT) should possess a metaphysically necessary dual AdS space with an extra dimension (as in Susskind’s ER=EPR interpretation of entanglement). Here I will introduce Susskind’s principle of Black Hole Complementarity and his spherical shell QM computer thought experiment where to get to the Ads space one must be uploaded unto the quantum computer). Following KriegeI will end by relating the aesthetic ‘sublime’ and the phenomenology of awe to the phenomenology of infinity and end by considering some of the ethical consequences of such a move especially in comparison to eliminativist ethics (Kammerer).

C - 6

Keywords
Holographic Correspondence, AdS/QFT. Levinas, Infinity, Ethics, Aesthetics, Awe. Sacred Spaces, Sublime, Conformal Field Theory, Parallelism, Constitution of Consciousness, Error Correction Codes, Island Universe,

159

An Electromagnetic Substrate For Consciousness?

Steven Finette

Independent Researcher, Frederick, Md, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.07]........Logic and computational theory

Abstract
Given the experimental evidence that consciousness is intimately associated with electro-physiological behavior of neurons and their associated network interactions, as well as a growing view that endogenous ephaptic coupling is not an epiphenomenon, a number of researchers have proposed a causal link or even equivalence between neural-generated electromagnetic fields and consciousness. While the human brain contains an extremely complex electromagnetic space-time structure supporting an immense number of degrees of freedom, the foundational underpinnings of such a field's relationship to consciousness is, from a physicist's perspective, far from being established or clarified either conceptually or quantitatively. A connection is physically plausible because electromagnetic forces completely dominate the space-time scales of interest in the brain. In this presentation, I consider a first step in a quantitative investigation of a potential correspondence by examining a physical relationship between an hypothesized fundamental property of consciousness and an electromagnetic structure directly linked to such a property. The rationale is that regardless of the ultimate nature of such an assumed correspondence, any plausible electromagnetic field theory of consciousness should provide a basis for acting upon information derived from endogenous or afferent generated data streams processed by the brain while also addressing the problem of how such information is embedded in, combined and transmitted through the field in a unique manner consistent with the laws of electromagnetism. In recent years, there has been a burgeoning consensus that information is physically based, and this notion applies to the means of generating, combining and transmitting information from one spatial region to another. Therefore, as a working hypothesis, I assume that information is a fundamental physical attribute of consciousness and illustrate that it can be intrinsically embedded/combined/transmitted in (classical) electromagnetic fields by virtue of their mathematical structure. Utilizing some known results in functional analysis and recent developments from communication theory, an information-theoretic alternative to the conventional physical interpretation of a field is discussed, in the form of information that can be quantified and transmitted in the Shannon sense. In this view, the sources of the fields are current densities present in both endogenous and afferent data streams and whose strength, direction and time dependence embed information. The information linked to these currents may reflect non-linear network processing that is caused by weakly emergent spiking dynamics. Issues surrounding the viability of the approach and resulting analysis are discussed. The consequences of this analysis do not directly resolve the epistemic problem of the explanatory gap between mental and physical events but might offer a physically grounded interpretation - that electromagnetic fields could, in principle, provide a physical substrate for supporting consciousness via their ability to represent and transfer information - which could provide additional insight and an avenue of investigation for resolving this philosophical debate.

Poster - 1 (Wed)

Keywords
electromagnetic fields, information, consciousness, weak emergence, explanatory gap

167

The Hidden Protagonist in the Theater of Consciousness: What Critical Brain Dynamics Reveals About the Fundamental Mechanism Behind Conscious Processes

Joachim Keppler

DIWISS Research Institute, Roth, Bavaria, Germany

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.14]........Quantum theories of consciousness

Abstract
Empirical evidence indicates that conscious states are related to highly synchronized neural activity patterns whose dynamical characteristics can be attributed to self-organized criticality and phase transitions. These findings imply that insight into the mechanism by which the brain controls phase transitions will provide a deeper understanding of the fundamental mechanism by which the brain manages to transcend the threshold of consciousness. It is argued that the initiation of phase transitions and the formation of synchronized activity patterns is due to the coupling of the brain to the zero-point field (ZPF), which plays a central role in quantum electrodynamics (QED). The ZPF stands for the presence of ubiquitous vacuum fluctuations of the electromagnetic field, represented by a spectrum of normal modes. Supported by QED-based model calculations, the details of the coupling mechanism are revealed, suggesting that critical brain dynamics is governed by the resonant interaction of the ZPF with the most abundant neurotransmitter glutamate. A direct consequence of resonant glutamate-ZPF coupling is the amplification of selected ZPF modes, which leads us to conclude that the ZPF is the key to the understanding of consciousness and that the distinctive feature of neurophysiological processes associated with conscious experience consists in modulating the ZPF. Postulating that the ZPF is an inherently sentient field and assuming that the spectrum of phenomenal qualities is represented by the normal modes of the ZPF, the significance of resonant brain-ZPF interaction for the formation of conscious states becomes apparent in that the amplification of selected ZPF modes can be interpreted as the excitation of specific phenomenal qualities. This theory of consciousness, according to which phenomenal states arise through resonant amplification of zero-point modes, is denoted by the acronym TRAZE. A prediction ensuing from TRAZE is that phenomenal awareness cannot occur when the brain-ZPF interaction is inhibited. Therefore, the hypothesis to be tested is that, under experimental conditions in which the coupling of the ZPF to the glutamate pool of a small array of cortical microcolumns is disrupted, the phenomenal states usually experienced do not arise. The central idea behind the test is to manipulate the ZPF in such a way that those ZPF modes that lie in the frequency band most relevant for the glutamate-ZPF interaction are eliminated. By excluding the relevant ZPF modes, resonant coupling of the glutamate pool to the ZPF cannot establish, causing the functional breakdown of the affected microcolumns and the suppression of conscious perceptions. It is crucial to note that in this test scenario only the local ZPF is manipulated, without making any changes to the brain. In this way, the design of the experiment is specifically tailored to demonstrate that phenomenal consciousness does not emerge from the brain.

Poster - 2 (Fri)

Keywords
theory of consciousness, conscious processes, fundamental mechanism, quantum field theory, zero-point field (ZPF), brain-ZPF coupling, criticality, phase transitions

175

The nature of light, the satisfaction of the wave/particle dilemma and the interaction of light with DNA molecules.

Mark David Rindner

University of Arizona, Tucson, AZ, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.01]........The concept of consciousness

Abstract
The nature of light, in terms of electromagnetic wave-like radiation and quantum-photons, has yet to be satisfactorily modeled. This is a speculative effort to offer a new model to be examined and evaluated by the scientific community. It is based on observations and formulated through a process of analytical comparison within diverse portions of biology, chemistry and physics. The basic premise is that an electron with very small mass might be set in motion by an energy of very great magnitude. If this electron were converted into a constituent of a structure that is perceived as electromagnetic radiation, it would propagate from its source at the “speed of light”. Yet it may somehow retain its angular momentum as a result of its relationship to its nucleus. As such, the actual resulting motion might exceed the “speed of light” due to the helical path it might trace. This may account for its mass to become undetectable in the normal sense and its presence to exist in an ethereal way. We are faced with the dilemma of light having both a wave-like nature and a quantum-like nature. The double-slit experiment has opened this question to scientific theorization and has yet to be settled. If an electromagnetic wave form was actually a helically-pathed massless particle, we might conceive of it at first as a wave and then also as a particle. This model might satisfy both observations. It might blend into the element of uncertainty that manifested as a result of quantum though. It might offer another way of explaining why light responds to gravitational fields on the cosmic level. It might offer another way to perceive energy as it pertains to the interaction between radiation and matter. The basis for this line of thinking is simply that, in layman’s terms, the universe seems to naturally produce spheres, spirals, helixes, orbits and vortexes. The speculation is that light may be another example of this proclivity, which appears in large and small structures throughout the physical universe. In addition, electromagnetic radiation in the frequency of ultraviolet toward x-ray seems also to have similar dimensions to that of the DNA molecule. If there could be established a correlation between the shape of the double helix molecule and the naturally existing solar radiation in this portion of the spectrum, it could lead to a new understanding of how life functions and is energized. If indeed there was some truth to the speculation that light consists of a faster than light massless photon moving in a helical path, there could be an intrinsic relationship between it and our DNA which might unlock many of the unknown aspects that exist in physics and biology.

Poster - 2 (Fri)

Keywords
light, DNA, wave, particle, radiation, helix

182

The use of Gas Discharge Visualization in near death studies research

Raul Valverde1, Konstantin Korotkov2, Chet Swanson3

1Concordia University, Montreal, Quebec, Canada. 2St. Petersburg National Research University, St. Petersburg, Northwestern, Russian Federation. 3Consciousness Research Foundation, Fort Lauderdale, Florida, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[05.08]........Near-death and anomalous experiences

Abstract
The purpose of the research is to understand the death process and its link to the human energy field with the help of gas discharge visualization technology. The presentation is aimed at presenting preliminary results that would help us to reveal how the human energy field (HEF) is connected to the body and how collected evidence is used to support the hypothesis of the survival of human consciousness. GDV technology gives an impression of the HEF and allows to see its day-to-day transformation linked to the different states of consciousness of the individual. GDV utilizes a weak, completely painless electrical current applied to a conductive object for one tenth of a second. The object's response to this stimulus is the formation of an electronic emission. The electrons emission stimulates gas (or air) discharge (or glow) that is captured by the in-built video camera. The number of emitted electrons is dependent on the state of the energy flows of the conductive object. Energy flows are related to the blood and lymph circulation, activity of the sweat glands, nerves and any other signals transmitted by the human body. The more electrons are emitted – more light will be formed around the conductive object. The higher the energy of the emitted electrons – higher will be the intensity of the photographed glow. An energy parameter is calculated from the area and intensity parameters of the glow captured by the GDV device, The principle of GDV is that the inner energy of the human body relates to the energy of the photographed glow collected by the device. The amount of the emitted light is dependent on the number of electrons emitted by the part of the body being measured. The frequency, number and energy of electrons emitted are directly connected with the inner energy reserves of the human body by the means of energy channels. Literature has shown that, with the use the GDV technology is possible to measure the activity of consciousness and observe its effect upon the emission characteristics of several organs of the human body. These parts include the brain, the heart, and the lungs. In this experiment, we use a GDV device in continuous mode by wearing a glove that helps us to collect data from the experiment’s participant. These measurements were conducted before and after death in several people that participated in the study, The intention of this collection is to monitor statistically significant changes of energy levels during measurements. The hypothesis is that states of consciousness have an effect in energy changes in the HEF. The second hypothesis is that death changes the state of consciousness of the individual and that consciousness remains linked to the body even after death and slowly detaches from the body after several days.

C - 3

Keywords
Near death experiences, Gas Discharge Visualization Technology, Photonic Technology, Quantum technology,

185

Dual-Aspect Monism andThe No-Jootsing Theorem

Dean Rickles

U of Sydney, Sydney, -, Australia

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.15]........Neutral monism and idealism

Abstract
Dual-Aspect Monism involves the hypostasis of a psychophysically neutral domain, thus denying the usual mind-body relation options. Mind and matter are aspects of this fundamental domain, providing us with epistemic access to it. This way of establishing the order of things imposes natural limitations on how we can understand the neutral domain, if at all. This is often considered to be a serious problem with dual-aspect monism so conceived (as Harald Atmanspacher’s talk will discuss). Yet, as my talk will argue, it appears to be a natural feature of physical theories that probe to the most fundamental levels of reality. Using Stephen Wolfram’s recently formulated Physics Project as a case study, I describe what I expect to be a generic result of theories that aspire to totality (theories that include observers/agents in addition to what the observe and interact with). This result is that there is, as Douglas Hofstadter once put it, no "jumping out of the system” [or “Jootsing"] to see what reality is ‘really like’. I consider this self-confessed limitation to be a virtue of a proposal rather than a problem.

PL - 10

Keywords
Dual-Aspect Monism, Mind and Matter, Atmanspacher, Wolfram, Hofstadter, Jootsing

190

Schrödinder's Cheshire Cat: A tabletop quantum gravity experiment to measure the Diosi-Penrose collapse time and demonstrate Objective Reduction (OR).

James P Tagg1,2, William A Reid1,2

1UCSD - Qualcomm Institute, San Diego, CA, USA. 2Valis Corporation, San Diego, CA, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.01]........Quantum physics, collapse and the measurement problem

Abstract
For nearly 100 years, the paradox of Schrödinder's Cat has remained unresolved. Why does the world we live in appear classical despite being composed of quantum particles governed by the Schrödinder wave equation? Lajos Diósi and Roger Penrose propose the wavefunction collapses because it describes two incompatible space-times. Heisenberg’s time-energy uncertainty principle governs the time taken to collapse. Subatomic particles with low mass – and correspondingly low energy – collapse in years, while cats collapse almost instantaneously. We have built an experiment to put two small mirrors into superposition and observe them collapse in a time consistent with the Diósi-Penrose model. The superposed mass is 0.2g. It is possible to run this experiment with relatively large objects due to an unobvious feature of the Diósi-Penrose equation. Large masses displaced by a small distance have self-energy inversely proportional to the distance squared and correspondingly high collapse times. Wave function collapse can be measured independently of decoherence due to the symmetry of the experiment, analogous to the Cheshire Cat Experiment. We will report on progress in measuring the effect.

C - 13

Keywords
Collapse, Wavefunction, Quantum-Gravity, Schrödinder, Cheshire Cat, Diosi, Penrose

193

The Living Cosmos: Consciousness, Astrobiological and Evolutionary Processes Governed by The X-Structure– The Nature of Life and Reality.

Steen Loeth, Birgitta Therner

New Cosmic Paradigm NCP X-AIONS, Skövde, Västra Götaland, Sweden

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.11]........Consciousness and evolution

Abstract
The Cosmos is undergoing an eternal, cyclic evolutionary process. This implies, for instance, that there is neither a beginning nor an end of time and that our universe is just one of an endless number of universes existing in the living, multidimensional Cosmos. The term "Big Bang" signifies one expression of a never-ending process with recurring "Big Bangs," where one universe replaces another. New Cosmic Paradigm (NCP X-AIONS) introduces a holistic, organic model addressing and explaining these dynamic astrobiological processes in the conscious, all-encompassing Cosmos. The model is based on The Cosmic Worldview presented by Danish intuitive philosopher Martinus Thomsen and his collaborator Per Bruus-Jensen. Martinus clarifies the principles and forces governing these astrobiological processes by directing attention to the so-called “X-Structure”– the nature of life and reality. The Cosmos is based on the initial reality, termed X0, the fundamental level of the X-structure, which constitutes the ultimate source of everything. X0 represents a living, unmanifested “Something”, characterized by wholeness, emptiness, stillness, infinity, and eternity. The nature of X0 has the inherent capability to manifest and materialize itself through an indivisible, "triplementary" principle, comprising three functional aspects termed X1, X2, and X3. The result of this triplementary principle is the continuous activation and transformation of unmanifested initial reality (X0) into manifested objective reality (X3obj.) and the experience of it as subjective reality/qualia (X3subj.) The X2-function comprises seven extremely subtle, qualitative so-called fundamental (or basic) energies. Two of them, expansion energy and contraction energy, are the main components of what we recognize as physical matter. These two energies play a pivotal role in the endless, cyclic, organic processes, marked by recurring phases of expansion and contraction/compression, in which new universes are born, evolve, and die. These astrobiological processes are governed and controlled by the primary fundamental energy, termed mother energy, which exerts its influence through so-called cosmic creative principles; transforming, form-creating, and structuring forces, which sustain and organize life and reality. We can empirically observe the effects of these creative principles within the constants and laws of nature, where their remarkably delicate precision becomes evident. The transforming creative principles (X2-function) generate contrasts to the X0-nature of wholeness, emptiness, stillness, infinity, and eternity, which is transformed and structured into life-units, matter, movement, space, and time. The so-called cycle principle and motion principle which encompass the five universal classes of motion including space, time, and matter are crucially important for the formation of the continuous, cyclic phases marked by recurring “Big Bangs” where one universe replaces another. These organic, transformative processes involve reincarnations and disincarnations of universes in the living, multidimensional Cosmos. The Cosmic Worldview additionally outlines the evolutionary journey of all life forms in the dynamic Cosmic Evolutionary Spiral. New Cosmic Paradigm – NCP X-AIONS Advanced Institute of Ontological Principles and New Science stands as the ontological, non-religious arm of The Cosmic Worldview/ Martinus Cosmology. NCP X-AIONS is dedicated to presenting Ontological Principles and New Science, centering its focus on the great issues of Life, Consciousness, and Reality.

Poster - 1 (Wed)

Keywords
astrobiology, astroconsciousness, evolution, living multidimensional cosmos, conscious cosmos, endless cycles of universes, X-structure, cosmos, cyclic evolution, universe, recurring big bangs, cosmic evolutionary spiral, ontology, Cosmic Worldview, Martinus Thomsen, Per Bruus-Jensen, nature of life and reality, initial reality, objective reality, subjective reality, qualia, X0, X1, X2, X3, triplementary principle, qualitative fundamental energies, expansion energy, contraction energy, basic energies, cosmic creative principles, reincarnation, disincarnation, New Cosmic Paradigm, NCP X-AIONS, Martinus Cosmology, ontological principles, new science, cosmology, holistic worldview, organic worldview

195

The Journey of Consciousness Independent of The Physical Body and Reincarnation: A Fundamental Process of Evolution.

Birgitta Therner, Steen Loeth

New Cosmic Paradigm NCP X-AIONS, Skövde, Västra Götaland, Sweden

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.11]........Consciousness and evolution

Abstract
Consciousness beyond life, independent of the physical brain, past-life memories, reincarnation, and near-death experiences constitute a significant body of research. Dr. Jim B. Tucker's studies at the University of Virginia School of Medicine focus on children's memories of previous lives and reincarnation. Dr. Pim van Lommel explores near-death experiences, and Dr. Peter Fenwick delves into end-of-life phenomena. The evidence is convincing and overwhelming, but at the same time, explanations are lacking and being sought. New Cosmic Paradigm (NCP X-AIONS) introduces a comprehensive model that addresses and explains these phenomena. This logical model is based on The Cosmic Worldview, presented by Danish intuitive philosopher Martinus Thomsen and his collaborator Per Bruus-Jensen. The Cosmic Worldview provides a post-materialistic, holistic, and organic world picture focusing on the so-called X-Structure ‒ the nature of life and reality. The Cosmic Worldview demonstrates the independence of consciousness from the physical brain and outlines the process of reincarnation. It explains how life continues in paraphysical planes of existence after physical death and describes the sequence of events leading to a new incarnation. The X-Structure provides natural explanations for memories from previous lives, xenoglossy, near-death experiences, and more. Moreover, it presents groundbreaking perspectives on evolution and outlines the evolutionary journey of all life forms in the Cosmic Evolutionary Spiral. The X-Structure demonstrates that all living beings have, in addition to the temporary physical body, an immortal paraphysical body/ structure, which the physical organism is connected to and dependent on. The paraphysical body constitutes an extensive and complex organic system. Within this organic system, unique stable storage units, referred to as talent cores, play a pivotal role. One of the main functions of talent cores is to accumulate and process all our individual experiences, abilities, skills, qualities, etc., to make it possible for us to reuse and develop them and to carry them with us from life to life. The talent cores function as essential prerequisites for the development of all forms of life and evolutionary processes. Specific organ-talent cores contain information crucial to the creation of organisms, dismissing the conventional notion that complex form-shaping and development are solely genetically programmed. According to the Cosmic Worldview, the primary form-shaping and evolving processes with all the underlying information are accumulated in the organ-talent cores and activated at the paraphysical level when the reincarnation process commences. The significance of talent cores extends to the field of epigenetics, where they exert a direct influence on the genes of the DNA spiral. Throughout the embryonic and fetal periods, individuals undergo a repetition of their earlier developmental stages. This repetitive process is observable and traceable across different stages, wherein pre-programmed talent cores autonomously govern and control the creation and shaping of a unique organism. New Cosmic Paradigm – NCP X-AIONS Advanced Institute of Ontological Principles and New Science stands as the ontological, non-religious arm of The Cosmic Worldview/ Martinus Cosmology. NCP X-AIONS is dedicated to presenting Ontological Principles and New Science, centering its focus on the great issues of Life, Consciousness, and Reality.

C - 2

Keywords
consciousness, reincarnation, immortality, evolution, X-structure, nature of life and reality, existence, Cosmic Worldview, Martinus Thomsen, Per Bruus-Jensen, after death, paraphysical dimensions, paraphysical body, evolutionary process, disincarnation, talent cores, organ-talent cores, epigenetics, fetal development, embryonic development, previous lives, embryological processes, past life, near-death experiences, New Cosmic Paradigm, NCP X-AIONS, Martinus Cosmology, ontological principles, new science, organism, past-life memories, evolutionary factors, end-of-life phenomena, xenoglossy, cosmic evolutionary spiral, consciousness independent of the brain, origin of life

201

3-D vision - scientific discovery

Mukesh chandubhai chauhan

UCH, London, Middlesex, United Kingdom

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.03]........Neuroscience of vision

Abstract
3-D vision, nobody in the world of science knows how we get 3-D vision. eminent scientists like Crick and Koch have ventured to try and explain this mysteries subject in their Scientific American article, albeit unsuccessfully. How did I succeed in making this beautiful scientific discovery when the leading scientific institutions and experts on vision and neuroscience could not nail the topic - my answer was simple, I started with my journey from my surgery in London in search of Creator of our Universe - i.e. Creator of Nature, Order and organization. It took me 14 years search through hell and monumental difficulties, but I never gave up as the seed was implanted in my brain while doing cadaver dissection at University College London as to what happens to live spark after death and where had it gone and how does rebirth take place and much more. It was watching a video of human eye by scientist from Koch institute that human eye was poorly designed with rods and cones cells running at the back of human retina and then impulses have double back and send impulses via optic nerve and thalamus to visual cortex at the back of the human brain. This got me thinking...why would Creator prove Darwin was correct that human eyes are not designed at all. Why? Why? Why? Creator or Infinity whom I had discovered know my deeper interest and then revealed to me the entire mystery of 3-D vision. Human eye is Intelligently Designed is a scientific fact. The light calls are running perfectly from the back of retina and the reason is because physical and material scientists have overlooked the most important aspect of 3-D vision which is human 3-D vision does not work like what current neuroscience thinks, theirs is only part of the story. I discovered deeper level of Quantum control of human 3-D vision whose sheer beauty and grandeur I appreciated after attending London's History Museum which was holding an exhibition of colour and vision. It is my scientific discovery that human vision was Intelligently Designed by Grand Designer before a single human being was born. It is my scientific discovery that there are 5 stages to 3-D vision, out of which 4 stages are invisible to modern science. How I made this Nobel Prize winning discovery is nothing short of a intuition miracle. I will reveal the details of the 5 stages during a live presentation on the topic of 3-D vision in person. 3-D vision is intricately tied up with my first scientific discovery of human consciousness. Remember, I was seeing, individual electrons, individual quarks, individual photons etc.

Poster - 2 (Fri)

Keywords
3-D vision, scientific discovery, Quantum code discovery, consciousness, scientific proof, 5th stage of 3-D vision is visible, 4 stages prior to that vision are hidden as they work from sub-quantum level, my discovery has important ramifications for many eye diseases.

206

The "Universe and You" to explain the non-living molecular "Universe" and living cellular "You"; The amazing journey of the electron.

Antonius C.W Laurijssen

WCPC, Ottawa, Ontario, Canada

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
The “Universe and You” book talks about the origin and destiny of the “Universe” and of “Life” and “Consciousness” through biology, material Cosmology and Physics. It answers questions, which science and religion aren’t able to answer. New definitions and explanations are given for creation and evolution. The function of creation is Life. The function of Life is eternal Life. It promotes and explains human enlightenment to create a better, enlightened World in order to establish real, lasting peace and save planet Earth. Humanity needs to rise above its straightjacket of the human condition, work together collectively and share everything to save Humanity from itself to become a soul planet. It gives details why we live as humans or the meaning of life. It explains the full journey and purpose of you being an evolving soul having a human experience for now. It explains the origin of life, death, thought and consciousness, which is related to the light that appears at the end-of-life and connects to your body (nose bump) through an invisible spaghetti-like golden cord. Consciousness is living light (eye, mind). The origin of consciousness is the light-effect in H2-Hydrogen molecule. The silver cord is an invisible spaghetti-like cord connecting the soul who you are in the dreamtime to the body (breastbone) you have in the daytime. It clarifies the difference between the “immaculate Universe” of infinite dark Space filled with eternal black Time or opaque black neutron “pole” Stars and the “Universe”, which is a Superuniverse (many galaxies), a Galaxy (many cosmic units) or a cosmic unit (a white “hole” proton star, planets and moons). There are no Superuniverses, galaxies or cosmic units in an immaculate Universe. It talks about the beginning, middle and end of the H2-Hydrogen molecule (“H1-atom”), cosmic unit, Galaxy and Superuniverse. It mentions the building blocks of the non-living molecular and living cellular universes. It describes the Universal and Evolution Map, which is the result of the study of relationships, all sciences combined, especially biology combined with theoretical physics and cosmology and the application of pure logic. For example: the relationship between molecule-cell, cell-organism, organism-planet Earth, sperm-neutron and egg-proton. It elucidates what the human aura system is and how it works. It explains how it connects to your body through the chakras and to all the molecules in your body. Chakras are dimensional connections. Your aura has a color. The ultimate is to reach a white aura system as a human being. It clarifies the 6 dimensions of the parallel universe system we live in, where they are, what they are and how we relate to them, including their origin in H2-Hydrogen molecule. There is the solid, linear Space-Time dimension related to the electron, earth element, the liquid, circular dimension of Time related to the energy, water mineral and the gaseous, figure eight dimension of Space related to the light, air element. It describes the 8 + 2 forces in all matters and states. It explains how black “hole” neutron stars work (dark matter in science).

Poster - 2 (Fri)

Keywords
Universe, immaculate Universe, consciousness, Life, cosmology, biology, physics, creation, evolution, enlightenment, human condition, soul planet, meaning of life, dark Space, black neutron star (black "hole"), cosmic unit, galaxy, Superuniverse, human aura system, 6 dimensions, forces in matter

218

Towards Quantum Gravity: An Observer Model for Dark Matter and Dark Energy

Alon Retter

Hamatara Emet, The Science and Consciousness Institute, Tel Aviv, Israel, Israel

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.04]........Cosmology and integrative models

Abstract
There are two basic physical theories – Quantum Mechanics for small distances and Gravitation for the large scales. A unification model between the two has long been desired. Gravity seems to fail at cosmic distances, and the observed matter can only explain about 5% of the gravitational force involved in galactic motions. Scientists have thus invoked the presence of dark matter and dark energy to constitute the remaining 95% of the universal mass. The major scientific effort to find such dark particles has failed to date. This talk addresses these two cosmological challenges and how solving them in a unique way leads to evidence of unity in the cosmos. We propose to explore the idea that the origin of dark matter and dark energy is consciousness. Following Quantum Theory, we postulate that adding the observer into the equations using the perception that everyone observes the universe from its conceptual center, i.e., from the singularity, can explain dark matter and dark energy without any new particles. This Quantum Gravity model has great success explaining the observational riddles of the universe, but more work is required to finish it. A scientific understanding that we are all connected has the potential of reducing arguments, violence, detachment and wars and increasing connection, unity, love and peace. In addition, solving the secrets of matter-energy holds the possibility of overcoming the gravitational force and thus influences the aviation and transportation markets.

C - 18

Keywords
gravity; consciousness; dark matter; dark energy; universe; mass; force; Newton; Einstein; cosmos; attraction; repulsion; redshift; theory; quantum; observer; equation

222

Surface Code Quantum Computation Model of Microtubule-based Orch OR

Seungju Ahn, Byung-Soo Choi

Pukyong National University, Busan, Busan, Korea, Republic of

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.14]........Quantum theories of consciousness

Abstract
To explain the consciousness of brain, the Orchestrated Objective Reduction (Orch OR) theory was proposed by Penrose. The Orch OR is based on the quantum mechanics, specially by the quantum self-collapse property of superposition state with gravitational effect. If the Orch OR is correct, it should be occured in the brain. Related to this, the microtubule has been investigated as a building block of brain which has the Orch OR properties by Hameroff. He also claimed that the microtubule-based Orch OR is linked with the quantum computation. However, there is little know about the practical implementation model of microtubule-based quantum computation. In this work, we propose a specific implementation structure based on the surface-code quantum computation model. Specially, we explain that there is one to one correspondence between the internal structures of the microtubule and the surface code. We also discuss the theoretical analysis about the Orch OR condition under the proposed implementation model. We expect that the microtubule-based Orch OR approach can be verified by the proposed QC implementation model.

Poster - 2 (Fri)

Keywords
Orch OR, microtubule, quantum computation, surface-code model

228

Anesthetic block of seedling phototropism is reversible, and it involves microtubule network disruption.

Rajnish Khanna1,2, Andrey Malkovskiy1, M. Bruce MacIver3

1Carnegie Institution for Science, Stanford, CA, USA. 2i-Cultiver, Inc., Manteca, CA, USA. 3Stanford University, Stanford, CA, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.10]........Origin and nature of life

Abstract
Isoflurane, a halogenated volatile anesthetic, is used to induce and maintain general anesthesia in a dose-dependent, reversible manner. In central nervous systems, like ours, isoflurane targets multiple sites, including inhibition of neurotransmitter-gated ion channels like the N-methyl-d-aspartate (NMDA) receptors and enhancement of GABA and glycine, receptors. This results in CNS depression. Despite reports of potential impacts on multiple pathways, the underlying mechanisms of anesthetics, including isoflurane, remain a mystery. Furthermore, mechanisms of anesthetic activity may inform us of basic processes involved in consciousness, since all anesthetics block consciousness. A systematic approach with different anesthetic concentrations is needed to map early and downstream events linked to specific functions. Anesthetics used in humans and animals have previously been shown to depress respiration, inhibit plant growth and immobilize leaf movement, in a reversible manner. Animals and plants share a common ancestor 1.6 billion years ago as well as numerous molecular targets associated with structural proteins, signaling pathways and metabolic enzymes. For this reason, it has been proposed that plants could provide a simplified (reduced) experimental system to understand how anesthetics work at the molecular level. We are taking a systematic approach with different concentrations of isoflurane to identify basic mechanisms linked to disruption of specific environmental responses using the model plant Arabidopsis thaliana (mouse cress). Arabidopsis plants expressing GFP-TUBULIN showed that isoflurane disrupts microtubule dynamics linked to phototropism and young seedling development. Further, we found that GFP-labeled microtubules in constitutively photomorphogenic 1 (cop1, lacking E3 ubiquitin ligase activity) mutants exhibit tolerance to isoflurane. The cop1-mutant is well studied and is known to accumulate microtubule stabilization components, amongst other factors, resulting in slowing of normal growth and development in response to environmental signals. Our results indicate that isoflurane directly binds microtubules and alters repolymerization, and this effect is reduced when microtubules were already stabilized in cop1 mutants. Plant microtubules are known to play essential roles in responding to environmental stimuli. Our work is ongoing with genetic and molecular tools that are readily available in plant systems and demonstrate that photoreceptor activity was not altered by isoflurane and implicate direct anesthetic effects on microtubules.

C - 30

Keywords
Anesthetics, microtubules, plant responses to anesthetics

237

Entropic fractality in a quantum graphene tube

Natalia Cortes, Patricio Vargas

Universidad Tecnica Federico Santa Maria, Valparaiso, Casilla 110V, Chile

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.14]........Quantum theories of consciousness

Abstract
In a pristine crystal, a single electron experiences the electrostatic potential of localized atoms within the lattice. This movement is dictated by the tunneling probability between lattice sites. However, when subjected to a homogeneous magnetic field perpendicular to the lattice, the electron exhibits circular orbits with the cyclotron frequency. The resolution of these scenarios became possible in 1976 when D. Hofstadter analytically solved the problem for a square lattice, revealing the Hofstadter butterfly. The butterfly is a fractal pattern that depicts the electron-allowed energies as a function of magnetic flux at zero temperature. In our study, we extend this analysis to a two-dimensional graphene lattice modeled as a tube, and incorporating temperature effects. Utilizing an analytical pi-orbital tight-binding model and numerical calculations, we determine the allowed energies, density of states, and electronic entropy using Fermi-Dirac statistics. Our results unveil entropic oscillations and fractal patterns influenced by the magnetic flux. Notably, low or high-temperature values govern the overall structure. These theoretical insights into electronic quantum processes with fractal-like patterns at different temperatures in a simulated graphene tube offer valuable perspectives. Furthermore, our findings may contribute to understanding potential quantum mechanisms in microtubules within neurons, as suggested by the Orchestrated Objective Reduction (Orch-OR) theory proposed by S. Hameroff and R. Penrose, shedding light on the emergence of consciousness.

C - 21

Keywords
graphene, fractals, Hofstadter butterfly, temperature, electronic entropy, magnetic field, consciousness, Orch-OR

249

Consciousness Force in a Dualist Universe or a Quantum Universe

James Gruhl

Massachusetts Institute of Technology, Cambridge, Massachusetts, USA. Gruhl Associates, Tucson, Arizona, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
A Dualist Universe is usually defined as a universe with two domains, a Physical Domain and an Informational (or Spiritual or Quantum) Domain. For example, the ancient Egyptians believed in a Dualist Universe consisting of a Structural Domain (physical) and an Apprehension Domain (informational) - symbolically depicted as a Pyramid with an Eye on top. The Bible suggests a Dualist Universe consisting of the “Seen” and the “Unseen,” with the Unseen dominant and original, “In the beginning was the Word.” The Order Conjecture, related to the Second Law of Thermodynamics, claims that “Significant Order cannot happen by chance, but must be imposed by a Force.” Therefore, since consciousness imposes significant order, it is a force, and since it is not physical, it must be an Informational Force. There are two arguments for the Informational Domain to be dominant over the Physical Domain, and one argument has to do with the speed of information transfer: in the Physical Domain this is at the speed of light and in the Informational Domain this is infinitely fast. The other dominance argument is based on the fact that the Physical Domain is pixilated (space at 10\*\*-35m and time at 10\*\*-45sec). Since the precise fineness of the pixilation is apparently arbitrarily chosen, based on the available energy or effort required, this means anything pixilated is a representation of something else. This argues for the Informational Domain to be dominant and the Physical Domain just a useful, but imprecise, representation. If the Informational Domain is Reality, and is the universe, this would be a Quantum Universe, or Informational Universe, or Spiritual Universe, in which consciousness force and all other information resides. If we are in a Quantum Universe, many of the mysteries of science may just be the result of poor misrepresentations (like the Double Slit Problem, snowflakes or Black Holes). As with Quantum Computing, understanding and partially utilizing effects and forces that are in both the Physical Domain and Informational Domain, from our limited position in the Physical Domain, will require unusual skill and understanding. Those effects and forces that cross between the two Domains, such as consciousness, life, crystals, photosynthesis, flames, capillarity, etc., all may have some limited usefulness, even from our constricted place in the Physical Domain. The full article can be gotten from a request to multicipation@gmail.com.

Poster - Remote (post)

Keywords
consciousness force, order, universe, Dualism, pixilated, reality, Double Slit Problem, quantum effects, contrary physics...

251

Conscious Supremacy

Ken Mogi

Sony Computer Science Laboratories, Shinagawa, Tokyo, Japan. The University of Tokyo, Meguro, Tokyo, Japan

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.01]........Neural correlates of consciousness (general)

Abstract
The computational significance of consciousness is an important and tangible research issue, and could elucidate the hard problem of consciousness (Chalmers 1995) from a different angle. In computer science, quantum supremacy (Arute et al. 2019) has attracted much attention as a watershed criterion between classical and quantum computers. Even if an algorithm is in principle computable in the sense of the mathematics of computability (Penrose 1989), quantum computers might have a practically insurmountable advantage, given limits on the computational resources physically available, including time. Here I propose and discuss the concept of conscious supremacy, where computations done consciously holds an advantage over unconsciously conducted computations given the limitations on resources in biological systems. Although conscious processes would be computable in principle, within the contexts of biologically plausible cellular environments some computations would be possible only when executed consciously. Several computations typically conducted in human cognition, including visual perception, robust handling of attention, judgement, decision making, and sensori-motor coordination are discussed as possible candidates for conscious supremacy. In addition, I discuss possible brain mechanisms involved in realizing conscious supremacy. Conscious supremacy is likely to have been important in the evolution of biological systems, starting from the robustness of single cells (Bray 1995). The relationship between conscious supremacy and linguistic processes is discussed, in relation to the higher-order theories of consciousness (Lau and Rosenthal 2011). Recently, advancements in generative artificial intelligence systems such as ChatGPT (Sanderson 2023) have highlighted the possibilities of reproducing human cognition by artificial means. Interestingly, once a particular functionality is realized artificially it is typically considered to be non-essential in human intelligence, a human cognitive bias called AI effect (Haenlein and Andreas 2019). Many researchers regard computations conducted by artificial intelligence systems, e.g, one based on the transformer architecture (Vaswani et al, 2017) to be unconscious in nature. The AI effect can be considered to be a tool in filtering candidates of computational processes to decide whether they would fall within the domain of conscious supremacy. I discuss possible relationships between quantum supremacy and conscious supremacy. Some authors have suggested the involvement of quantum processes in consciousness (Hameroff 1998, Hameroff and Penrose 2014), although there have been controversies (Tegmark 2000). I discuss possible links between schemes used in quantum computing, e.g. Shor's algorithm for finding prime factors of large integers (Shor 1994), and cognitive processes typically executed by a conscious brain, such as those involving the binding problem (Feldman 2012). Finally, I discuss possible ways the elucidation of conscious supremacy could contribute to the hard problem of consciousness. The contrast between the Platonic appearance of the phenomenology of qualia and the noisy nature of neural firings might suggest a mechanism similar to quantum error correction (Cai and Ma 2021). I discuss how conscious supremacy might be realized by processes either involving, or independent of, quantum processes in the brain.

C - 13

Keywords
quantum supremacy, conscious supremacy, computability, qualia, hard problem

263

The Theory of Embedded Intelligence (TEI)

Bill Mensch

UArizona, Tucson, AZ, USA. The Bill and Dianne Mensch Foundation, Inc., Mesa, AZ, USA. The Western Design Center, Inc., Mesa, AZ, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.06]........Machine consciousness

Abstract
Abstract: This concurrent presentation on The Theory of Embedded Intelligence (TEI) extends the Embedded Intelligence Workshop (EIW) of TSC 2022. Embedded Intelligence (EI) is defined herein as that which self-assembles things by sensing, processing, communicating, and actuating (SPCA). All things in nature have to self-assemble aka create themselves. When something is created by another thing it is said to have been assembled aka created artificially. Humans create a lot of different things therefore artificially. When humans create intelligent things, we sometimes relate to that intelligence as artificial intelligence (AI). This concurrent presentation will explain EI from the perspective of the manmade 6502 microprocessor Embedded Intelligence Technology (EIT) aka 6502 AI. The Theory of Embedded Intelligence (TEI) explains consciousness of things as the result of the embedded intelligence of the thing to SPCA. All things in nature exhibit self-consciousness to be the thing it is.

C - 1

Keywords
embedded, intelligence, technology, artificial, machine-learning, machine-consciousness

281

The Water Anharmonic Vibrational Frequencies – the Alphabet of Life

Roumiana Tsenkova

Kobe University, Japan, Kobe, Hyogo, Japan

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.16]........Miscellaneous

Abstract
Aquaphotomics is a new Science and Technology Integrative Platform presented in 2005. The principal novelty of this field is placing the focus on water as a complimentary to other molecules in biological or aqueous systems. Water is a highly dynamic molecular system of dipoles that connect to each other forming various structures, i.e. being able to perform various functions adjusting to the environment with speed in the femtosecond range through rearranging its structure. Water is sensitive to any change the system experiences – external or internal. It is an integrative ultimate sensor, a collective mirror. Water – light interaction makes water an autopoietic system: it can produce and maintain itself by creating its own parts, i.e. water molecular structures, thanks to its ability to absorb and illuminate light at various frequencies. Water has coherent and non-coherent part reacting to space-time in a highly correlated manner through exchange of single quantum energy. Because of its quasicrystal structures, very often it is thought as of quantum computer itself. The molecular structure of water, revealed through its interaction with light as a multidimensional spectral pattern (aquagram) of all frequencies becomes a very important tool for investigations and a source of immense information about the state of the system and the environment.[1]. Our spectral analysis of numerous systems under various perturbations at the water overtones` anharmonic vibrational frequencies have shown variations of the intensity of light absorbance repeatedly at the same frequencies but in different combinations depending on the system and its condition. Further on, we discovered that each of these frequencies is assigned to a specific water molecular structure and the combination of these structures and their concentration (expressed by the light absorbance intensity) relates to the functionality of the system. Non - destructive monitoring of the water spectral patterns (aquagram) following a perturbation allowed acquisition of immense information that lead to identification of waters with different functionalities, to diagnosis and understanding of inflammation and stress in animals and plants, to non-invasive observations of blood – water relation in humans etc. For the first time, aquaphotomics study showed that different sound frequencies change the water spectral pattern of different waters differently, but in similar and respective way. Near infrared spectral monitoring of human palm before and after various types of meditation (using sound or meditation leadership) have shown distinctive individual patterns for each attendee before the meditation, but similar aquagrams especially after the meditation and depending on the type of meditation. For the first time, with Aquaphotomics, we were able to perform non-invasive quantitative measurements of physio-chemical changes in human body related to water structure and its functionalities. We have shown that meditation changes the water structure in the body towards increasing of the antioxidants, i.e. “working water” molecular species. For the first time we could correlate subjective and objective experiences of consciousness. The results of this scientific endeavor lead to a conclusion that the interaction between light and water as the ultimate sensor can open a new venue for consciousness exploration.

C - 13

Keywords
water molecular structure, anharmonic vibrational frequencies, water as ultimate sensor and quantum field, non-invasive monitoring of water dynamics in living systems

296

A Modern Platonic Perspective on Experimental Approaches to the Hard Problem

Thomas Brophy

California Institute for Human Science, Encinitas, CA, USA. Institute Of Noetic Sciences, Novato, CA, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.04]........Ontology of consciousness

Abstract
The annual conference of the Society for Consciousness Studies, December 17, 2023, focused on the question: What research/experimental program would revolutionize the scientific search for the fundamental nature of consciousness? I proposed a possible simple answer: Experiments that prove the existence of the Platonic World (Platonic domain of reality). This presentation situates the tri-domain ontology of reality proposed by Penrose (Shadows of the Mind 1994), specifically Penrose’ inclusion of the Platonic domain together with the Physical domain and the Mental domain, as three fundamental irreducible ontological domains of reality that operate interactively together to tri-create reality, at the center of future paths toward addressing the “hard problem” of scientifically investigating the ontology of consciousness. The currently popular primary ontologies of reality (Materialism; Idealism; Dualism) are clearly differentiated from this proposal: Plato-Penrose tri-arising. Various experimental approaches at the forefront of science of consciousness are prioritized according to the criterion: Do they assess or indicate the existence of the Platonic domain?

C - 21

Keywords
Platonic world, Penrose, quantum collapse, state reduction, Born rule, nonduality, dual-aspect monism, neuroscience revolution.

306

Simplifying Complexity: Integrating Scientific, Philosophical, and Spiritual Approaches to Consciousness Using Systems Science

Lynn M Rasmussen

The Maui Institute, Makawao, Hawaii, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.05]........Emergence, nonlinear dynamics and complexity

Abstract
Emerging is a general systems science, a science of complexity, that describes systems of interacting “system processes.” This year’s plenary speakers frame consciousness in terms of oscillations and Bayesian modeling—inputs resulting in information and growth through feedback loops, frequency fractal models, rhythms and cycles, evolution of consciousness through fitness payoffs, porosity and absorption of boundaries, information as a lifeform, neural networks, and more. Systems Processes Theory describes how systems at all scales of complexity are made up of the same patterns of interactivity. Hierarchy theory describes how each systemic level organizes to the next scalar and temporal level and that the emergent level requires different metrics and displays emergent characteristics. In 2015, Dilip Konepudi and his team placed aluminum ball bearings in oil in a petri dish, circled the wall of the petri dish with a ground electrode, and suspended a source electrode above the surface. When zapped with electric voltage, the beads organized themselves into a treelike network to maximize the current flowing through them and then moved through their environment in wormlike motions to collect more energy. When disturbed by an insulated rod, the beads reformed into a new network. In other words, the beads self-organized into networks to maximize energy transfer, moved purposefully into energy-rich areas, and then adapted when perturbed. Self-organizing agency increases in complexity in systems within systems. At the human social level, bonding with others perpetuates the links in networks of family and community that assure the distribution of information, material, and energy. Informed by input, four to seven times per second, our whole brains break down into chaos and reorganize the four-dimensional projections that we individually experience as reality. At the level of the self, we each continually test and adapt these projections to bond, network, and meet our needs. Consciousness can be characterized as a state space with state variables, a snapshot in time of the system’s overall being indicated by changing metrics. At any given moment, your boundaries may be relatively porous or protectively closed. Physiological feedback--feelings--tell you when you are on the right track. You may use balancing feedback to open the relatively closed boundaries and to stop the amplifying feedback of protective fear or anger. In higher states, you find the middle way, do unto others as you wish to be treated, and understand karma—the chaotic nature of existence where actions have all kinds of effects. This metascience, this way of seeing, transcends scientific, philosophical, and religious distinctions and offers a path for integrating and modeling the work of scientists, philosophers, and spiritual and indigenous teachers. Most importantly, it is a description of experience that can help us raise our individual and collective consciousness.

C - 24

Keywords
complexity, systems, systems science, self-organization, networks, emergence, information, agency, feedback loops, religion, spirituality, evolution, nonlinear dynamics

314

Vacuum Orchestrated Spin Signaling - A Quantum Model of Non-local Cognition

Phillise T Todd

Pierce College, Lakewood, WA, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.14]........Quantum theories of consciousness

Abstract
The precise mechanism by which cognitive agency arises from fermions, structured into molecules, arranged into proteins, and organized into cells, is presently unknown. Recent advances in the field of bioelectric networks have raised new questions as to the attribution of agency in biological systems, specifically as it pertains to the complex informational processing defined as cognition. In this case, cognitive agency is regarded as the ability to pursue self-generated goals by differing means. Evidence of cognitive agency has been observed in gene regulatory pathways, arguably the most fundamental of biological systems, as well as in plants - both demonstrating the capacity for associative memory and learning through stimulus-response conditioning. A bioelectric map in the form of voltage gradients across cellular networks, has been identified as the source of anatomical and conditioning memory in biological systems. The most dynamic of these bioelectric maps - voltage oscillations across neuronal networks - are the extensively studied brain waves that correspond to the mental states of cognitive information processing. The origin of the information behind the bioelectric map, and how it is communicated to cellular networks, is currently unknown. Advances within the field of relativistic quantum information (RQI) have identified the quantum vacuum as an infinitely entangled structure of information reflecting the quantum-state dynamics of real fermions. It has been further demonstrated that this information is recoverable with a quantum antenna, through the process of entanglement harvesting. Radical pairs are short-lived quantum antennas, interacting with weak electromagnetic fields, which are generated through the process of metabolism - a process unique to living intelligence and not found in artificial intelligence. The radical pair mechanism can explain the isotope dependence observed in the ability of general anesthetics to block conscious awareness and memory, as well as the isotope dependence of lithium in affecting cognitive function. A radical pair model can also explain observed magnetic field effects on microtubule concentrations. Signatures of radical pair dynamics have also been observed in gene regulation, specifically the physiologically perplexing efficiency by which proteins identify consensus sequences on DNA. Here a scheme is developed in which the cognitive information processing of biological systems originates in the quantum vacuum, and is then signaled to cells via virtual photons that alter the electron spin dynamics of radical pairs within proteins. These alterations to radical pair product yields, are proposed to signal alterations in electric potentials across cellular membranes, thus generating the voltage gradients observed across cellular networks, including the neuronal voltage oscillations of brain waves. In this way, the process of ‘vacuum orchestrated spin signaling’ (VOSS) is proposed as a process by which the mind, the information of the bioelectric map, originates in the quantum vacuum and is signaled to cellular proteins via the radical pair mechanism.

C - 21

Keywords
radical-pairs, general anesthesia, microtubules, quantum vacuum, relativistic quantum information, bioelectricity, voltage, cells, brain waves, cognition, agency, entanglement

317

Quantum Physics of Soul Sickness and Soul Healing

Rulin Xiu1,2, Zhigang in Sha2

1Hawaii Theoretical Research Center, Kalapana, HI, USA. 2Tao Academy, Toronto, ON, Canada

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
Soul and soul sickness are mentioned in many spiritual and religious texts. Can one scientifically define and study soul sickness and soul healing? It is known that the current allopathic medicine often treats the symptoms but cannot address the root cause of diseases. Can one develop more advanced healing techniques to heal at the root cause? In this work, we propose that the limitation of allopathic medicine is due to its basis on the classical physics. To find and address the root causes of sicknesses, one needs to apply quantum physics to the medical field. In our research studies, we find that a new interpretation of quantum physics provides a scientific definition for soul, spiritual heart, and mind. This makes it possible to study soul scientifically. Through introducing the concept and definition for positive information and negative information, we can give life, soul sickness, and soul healing a scientific definition. It reveals that soul sickness is the state of a life system that has a significant increase of negative information with a decrease of positive information, which affects one’s function and fulfilment in certain areas of life. Soul sickness is the root cause of all sickness, difficulties, and challenges in one’s life. Soul healing is to change the negative information in one’s quantum field into positive information. Soul healing can address the root cause of sickness, challenges and difficulties in every aspect of life. In this presentation, we will review traditional wisdoms about soul sickness and soul healing from various traditions. We will present our quantum theory of soul, soul sickness, and soul healing. We will show that this quantum theory can provide us scientific understanding about various soul sickness and its impact on health, wellness, relationship, finances, environment, and world peace. We will point out various causes of soul sickness. We will discuss different soul healing techniques, clinical research and case studies on soul healing. If time allows, we can also do some soul healing demonstration so that the participants can experience soul healing techniques and learn how to use soul healing techniques for self-healing. We conclude that: (1) Soul sickness is the root cause of all sickness and difficulties in life. Soul healing is critical for health, wellness, and success in every aspect of life. (2) Soul healing can be applied remotely by oneself or others. (3) Soul healing techniques complement all current medicine and healing modalities. (4) Soul healing techniques are easy, simple, and pleasant to implement by medical doctors, health practitioners, psychiatrists, business consultants, other professionals, and everyone in conjunction with other healing modalities and medical treatment to enhance the efficacy of all treatments. Considering the importance and advantage of soul healing, more attention and studies should be directed to soul healing. Health professionals and everyone should learn about soul healing.

Existential Clinic 2

Keywords
quantum theory of consciousness, quantum physics definition of soul, life, soul sickness, soul healing, soul sickness, sou healing, quantum physics definition of positive information and negative information

331

DDG, the subconscious brain readings hidden deep inside the ultrafast time domain

Anirban Bandyopadhyay

national institute for materials science, tsukuba, ibaraki, Japan

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.01]........Neural correlates of consciousness (general)

Abstract
We've created a new instrument similar to EEG, named DDG, or Duo Decanogram. DDG differs fundamentally from EEG as it doesn't record the current flow on the brain scalp directly. It utilizes two probes, with one acting as an antenna measuring radiations from the brain surface. The other, with very low power and short duration, pulses in the stream to the brain surface. It identifies a wide range of time durations, pulses, or bursts of signals using a logical analyzer. With the DDG instrument, we've found that the brain signals not only in the familiar milliseconds time domain but also in various durations: milliseconds, microseconds, nanoseconds, and picoseconds. This challenges our longstanding belief that the brain processes information solely in the millisecond time domain. Our understanding has largely been based on measuring muscle potential with EEG on the brain scalp for 150 years. Muscles, membranes, and liquids filled with ions always vibrate in the kilohertz or milliseconds time domain. This makes it scientifically challenging to isolate the actual brain signal from ionic resonance, membrane resonance, cellular resonance, etc. DDG, operating primarily in the microseconds to nanoseconds time domain, where it exhibits maximum activity in the brain, remains unaffected by hand or forehead muscle movements that we can control. We anticipate that DDG will revolutionize brain science, offering significant insights into neurogenesis. This will help us understand how information, cognition, emotion, and other fundamental cognitive responses are linked to neuron bursts or other neural activities like the Microtubule burst, which we've identified as more fundamental to neuron activity.

PL - 8

Keywords

335

Consciousness is manifestation of soul supported by multiple evidences

Surendra Singh Pokharna1,2, Narendra Bhandari3, Manohar Lal Kalra4, Samani Chaitanya Pragya5, Jagat Singh Pokharna6

1Dr. Daulat Singh Kothari Institute for Research and Education, Udaipur and Science and Spirituality Research Institute, Rajathan, Ahmedabad, Gujarat, Bharat, India. 2Science and Spirituality Institute, Ahmedabad, Gujarat, Bharat, India. 3Dr. Daulat Singh Kothari Institute for Research and Education, Udaipur and Science and Spirituality Research Institute, Ahmedabad, Gujarat, Bharat, India. 4Dr. Daulat Singh Kothari Institute for Research and Education, Udaipur and Science and Spirituality Research Institute, Udaipur (Rajasthan), Bharat, India. 5Jain Vishwa Bharti, Ladnun, Rajasthan, Bharat, India. 6Vigyan Samiti, Udaipur, Rajasthan, Bharat, India

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.16]........Miscellaneous

Abstract
We synthesize multiple evidences which support the view that consciousness is manifestation of soul: (i) Annie Besant together with colleagues C. Leadbeater and C Jinrajdasa (ABC,1907 in short), used the technique of anima siddhi, in which the conscious body can assume an extremely small form and view the sub quark like structure of chemical elements like hydrogen atom. ABC have made several claims which were proved to be correct by later scientific studies. These predictions included existence of isotopes of various elements, existence of Kr85 etc., which were subsequently confirmed. One of their predictions was existence of 18 sub quark like particles (termed as Anu-s, the ultimate particles, by ABC) in the hydrogen atom, which was further pursued by Stephen Phillips, a particle physicist, from London (Phillips, see Dobyns, H., Y). This agreement supports the view that the conscious body can take miniscule form and acquire knowledge beyond sensory capabilities, consistent with Jain philosophy, as discussed later (ii) Taking clues from ABC and TDVP (Tri Dimensional Distinction Vortical Paradigm) model of Neppe and Close, Pokharna et al (2022) normalised the rest masses of up quarks and down quarks, constituting protons and neutrons with respect to the rest mass of the electron. The rest masses of electron, up quark and down quark are respectively 0.51 Mev/c2, 2.01 Mev/c2 and 4.79 Mev/c2. If the mass of an electron is taken as 1 (electron mass unit) then dividing the rest masses of two quarks by this value of 0.51 Mev/c2 and making the result equal to the nearest integer, one finds normalised mass/energy values as 4 for up quark and 9 for down quark respectively. These are termed as quantum units in TDVP model. This leads to normalised proton mass value of 17 and neutron mass value of 22 emu and Hydrogen = 18 emu. It means that what ABC have seen through Clairvoyance is sub-quark like structures. The number of anu-s seen by ABC and number of sub-quarks like entities computed using the data based on the modern science for Hydrogen atom matches perfectly, this study has been extended to all the 92 stable chemical elements and it was found that the correlation coefficient between these two numbers coming from two completely independent sources is 0.9996 with average statistical error of +8.64 percent (Quantum units are more). This is absolutely astonishing. Similar claims were made by ancient Jain Aacharyas and monks who have attempted quantitative estimates of sizes of microscopic particles of matter through clairvoyance. Their estimates were found to match statistically with sizes of atoms and nuclei as found in the modern science. We have looked for mechanism for viewing these sub-quarks like entities through clairvoyance. We have found that Mitchell, E. D., and Staretz, R., (2017) have explored the possibility of a quantum hologram (QH) and its link with Zero Point Field (ZPF). Using the concept of Phase Conjugate Adaptive Resonance (PCAR), they have explored the possibility of transfer of information from one QH (of ABC) to another QH (of Particle). Detailed explanations of clairvoyance and bodies which can be reduced to an extremely small size are given in Jain aagamas.

Poster - 2 (Fri)

Keywords
soul, quantum hologram, phase conjugate adaptive resonance (PCAR), clairvoyance, sub-quark, anu, electron mass unit (emu) and jainism

338

Positive Geometries of Consciousness

Donald D Hoffman

University of California, Irvine, California, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[01.08]........The "hard problem" and the explanatory gap

Abstract
Spacetime has no operational meaning beyond the Planck scale: roughly 10^{-33} centimeters, 10^{-43} seconds. Therefore many high-energy theoretical physicists conclude that “spacetime is doomed,” i.e., that it’s not part of fundamental reality (see, e.g., David Gross, 2005, Current Science, 89, 12, 2035-2040). They also conclude that “reductionism is doomed,” i.e., that it’s false to claim that probing smaller scales of spacetime can reveal more fundamental constituents of reality and more fundamental laws governing the behavior of such constituents. In the last decade, physicists have discovered new structures entirely beyond spacetime and quantum theory, structures such as decorated permutations and positive geometries. These structures accurately predict amplitudes for scattering processes of subatomic particles, and reveal new symmetries of these processes (see, e.g., https://wwwth.mpp.mpg.de/positive-geometry.html). Most theories of consciousness are not yet informed by these advances in high-energy physics. Most theories still assume that spacetime is fundamental. Most propose that conscious experiences, or the illusion of conscious experiences, have a reductive explanation in terms of objects in spacetime, such as networks of neurons. If spacetime is doomed, then so are these theories. They have failed, so far, to explain any specific conscious experience, such as the taste of vanilla (or the illusion of the taste of vanilla). If spacetime is doomed, this failure is principled. We propose a mathematical theory of consciousness informed by recent advances in high-energy physics. This theory posits a social network of interacting “conscious agents,” entirely outside spacetime and quantum theory, and irreducible to anything inside spacetime. Agents and interactions are modeled by Markov chains: a Markovian dynamics outside spacetime. Interacting agents combine and fuse, creating new agents and qualia. We introduce a partial order on Markovian kernels: M < N iff M is a trace chain of N. This induces a nonBoolean logic on Markovian kernels, the “trace logic,” and gives a theory of observation: Agent M observes agent N only if M < N. It also gives a theory of the relationship between observation and probabilistic belief: The map taking a kernel to its stationary measure is a homomorphism between the trace logic of observations and the Lebesgue logic of probability measures. We then discuss how the Markovian dynamics of conscious agents may project onto the positive geometries beyond spacetime discovered by physicists, and give a precise map from Markov chains to decorated permutations. One goal is to precisely predict the amplitudes for scattering processes in spacetime using a theory of conscious agents beyond spacetime. A new picture emerges. Consciousness does not arise from any physical process inside spacetime. Consciousness is not simply the fire that breathes life into the equations of physics in spacetime. Instead, spacetime arises as merely one of countless user interfaces that conscious agents construct to facilitate their interactions with each other. Spacetime is not fundamental reality, it is just one of the simpler, and lower-resolution, VR headsets used by conscious agents. Science inside spacetime studies one headset. It’s time to take that headset off, and explore the reality beyond.

PL-3

Keywords
Spacetime, positive geometry, conscious agent, Markov chain, hard problem, scattering amplitude, reductionism

339

The Search for Extraterrestrial Consciousness

Caleb Scharf

NASA Ames Research Center, Mountain View, California, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.11]........Consciousness and evolution

Abstract
While understanding the fundamental nature of consciousness remains a challenge, the possibility exists for learning more by detecting the presence of potentially conscious entities throughout the universe. I’ll survey and discuss progress and options in this area, including the search for technosignatures and ideas about the properties of conscious species and their functional requirements as seen through the lens of astrobiology. Some of those requirements may relate to the externalization of information that appears associated with ‘human-style’ consciousness and can be tied to fundamental constraints such as the Landauer-limit for irreversible bit operations.

PL-9

Keywords
astrobiology, technosignatures, information theory, SETI, search for life

351

The geometrization of the wave function of quantum mechanics.

Mariia Trukhanova

Lomonosov Moscow State University, Faculty of Physics, Department of Theoretical Physics, Moscow, Moscow, Russian Federation

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
Quantum theory is based on the wave function or spinor field, whose physical meaning has caused serious questions and disputes in the scientific community from the very beginning of the formation of the foundations of quantum mechanics. The development of quantum theory began with the work of Louis de Broglie, who compared a plane wave to the motion of quantum particles. Later, the probabilistic (Copenhagen) interpretation was adopted. But, de Broglie disagreed with such an interpretation in his attempt to find the deterministic nature of the physical reality behind the foundations of quantum mechanics. According to Louis de Broglie's idea, the wave used in quantum mechanics should be physically real, unified with the particle, which is a local region of large amplitude and energy concentration, a singularity moving in space and taking a quite definite position in the wave. On the other hand, a group of de Broglie’s followers - T. Takabayasi, J. Vigier and P. Holland attempted to derive a feasible model of the quantum matter applicable to subsequent formulation of the quantum mechanical theory (T. Takabayasi, J. P. Vigier, Prog. Theor. Phys. 18, 573 (1957); T. Takabayasi, Prog. Theor. Phys. 70, 1 (1983)). This model can be constructed in a highly realistic manner, specifically, the authors have formulated the theory in the form of a specified hydrodynamics of a fluid carrying intrinsic angular momentum, called "spin". We developed the idea of Takabayasi, Holland and Vigier, that the spinor wave must represent a new physical field propagating in space and influencing the corpuscle of mass moving within it.  We assume that this new field is created by the intrinsic spin of the particle and is a part of spacetime. We offer and develop the new geometro-hydrodynamical interpretation that connects the hydrodynamical formalism of the quantum mechanics for a spinning particle with the triad structure underlying the classical spin, based on these ideas (Mariya Iv. Trukhanova, Phys. Lett. A, 381, Issue 35, 2887 (2017)). We evolved the geometro-hydrodynamical representation of a spinor field as an assembly of very small rotating particles continuously distributed in space. This fluid carries the intrinsic angular momentum or spin, and each fluid element is represented by the triad, and the spin vector is fixed to the third axis of the triad. We assume that the spinor field has a geometrical nature and can produce new intrinsic forces and torques affecting the particle with spin (Mariya Trukhanova, The geometro-hydrodynamical formalism of the quantum spinning particle, Progress of Theoretical and Experimental Physics, Volume 2018, Issue 12, 123A01 (2018)). At the initial stage, we proceeded towards the realm of geometrical description. The spacetime structure is described by the Riemann–Cartan geometry with the curvature and torsion.  In this interpretation, the triad becomes the element of space, and we can identify the triad field as a fluid. We identify the spinor wave with the field or fluid of frames and the motion of each frame defined by its location in the field.

C - 18

Keywords
wave-pilot theory, quantum hydrodynamics, spacetime geometry, quantum mechanics interpretation, fundamentals of quantum mechanics.

356

Unveiling Asteroid Bennu's Mysteries: Insights from OSIRIS-REx and the Quest for Cosmic Origins

Dante S. Lauretta

University of Arizona, Lunar and Planetary Laboratory, Tucson, AZ, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
The OSIRIS-REx mission, tasked with the ambitious goal of retrieving a pristine sample from Bennu's surface and returning it to Earth, has provided scientists with a unique opportunity to study an ancient relic from the early solar system. The comprehensive analysis of the Bennu asteroid's returned samples unveils intriguing insights into its mineralogical, elemental, and isotopic composition. The data obtained from these samples establish strong parallels between Bennu samples and type-1 carbonaceous chondrites, shedding light on the asteroid's likely formation and evolutionary history. Noteworthy differences also emerge, fueling curiosity about the specific mechanisms responsible for Bennu's distinct attributes. Additionally, these findings have significant implications for the field of astrobiology, as the study hints at the potential relevance of Bennu and similar objects in unraveling the mysteries of life's origin and the role of extraterrestrial materials in terrestrial evolution. Moreover, the exploration of the orchestrated objective reduction hypothesis and the discovery that many Bennu organic compounds demonstrate fluorescence further deepens the significance of these discoveries in our quest to understand the fundamental aspects of existence, consciousness, and the origins of life in the cosmos. Dante S. Lauretta Regents Professor, Lunar and Planetary Laboratory Principal Investigator, OSIRIS-REx Asteroid Sample Return Mission Director, Arizona Astrobiology Center

PL-11

Keywords
Bennu, extraterrestrial, terrestrial evolution, cosmos, origins of life

359

Psychedelic interactions with tubulin and their effect on the optical properties of aromatic amino acid lattices in the microtubule cytoskeleton

Travis J. A. Craddock1,2, Tatum Hedrick1, Caleb Siguenza1

1Institute for Neuro-Immune Medicine, Nova Southeastern University, Fort Lauderdale-Davie, FL, USA. 2Departments of Psychology & Neuroscience, Computer Science, and Clinical Immunology, Nova Southeastern University, Fort Lauderdale-Davie, FL, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[02.19]........Psychedelics and psychopharmacology

Abstract
Microtubules are self-assembling biological helical nanotubes made of the protein tubulin that are essential for cell motility, cell architecture, cell division, and intracellular trafficking. In the nervous system microtubules play a crucial role in maintaining neuron structure, transporting materials for synaptic plasticity, and are a potential facilitator of signaling and sub-neural information processing. It has been hypothesized that this hollow molecular nanostructure may support optical transitions in photoexcited tryptophan, tyrosine, or phenylalanine amino acid lattices to function as a light-harvester, similar to photosynthetic units; this ability coupled with its shape is analogous to a quantum wire. In support of this, recent experimental work demonstrates that electronic energy can diffuse across microtubules in a manner that cannot be explained by conventional Förster theory making them effective light harvesters, an effect that is dampened by the presence of anesthetics. Like anesthetics, hallucinogens are natural molecular probes of consciousness, and both appear to target microtubules directly. There is also a consistent structural relationship between the phenylethylamine hallucinogens and the microtubule polymerization inhibitor colchicine. Additionally, there is a structural relationship with the indoleamine hallucinogens and the indole-based vinca alkaloids, however this is less clear. Regardless, this suggests a potential for direct modulation of the cytoskeleton and its optical properties by psychedelic compounds. Here we present theoretical work of the interaction of psychedelics with microtubules and the potential effect on energy transfer between amino acids in tubulin. Results demonstrate the potential for psychedelic manipulation of the optical properties of aromatic amino acid lattices in microtubule protein structures.

C - 9

Keywords
coherent energy transfer, excitonic transport, quantum biology, quantum optics, microtubule, psychedelics, structure-based simulation, optical biophysics

363

Complex chemical mixtures and the consciousness of molecular diversity in BioGeosystems and Extraterrestrial Materials

Philippe Schmitt-Kopplin

Technical University Munich TUM, Weihenstephan, Freising, Germany. Helmholtz, Munich, Oberschleissheim, Germany. Max Plank Institute for Extraterrestrial Physics, MPE, Garching, x, Germany

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.02]........Quantum field approaches

Abstract
Understanding on a molecular level complex organic mixtures in Bio- and/or Geosystems is a huge challenge in modern sciences and implies constant development and adaptation of modern ultrahigh-resolving analytical technology with innovative solutions for their resolved analysis. We aim to present concepts for the consciousness of chemical diversity of chemical mixtures subjected to biotic and abiotic processes. With complex systems we need high resolving analytical technologies to disentangle chemical complexity into its elementary parts (i.e. compositional and structural resolution) in a global integrated approach termed systems chemical analytics. The “complex” systems, phenomena or objects are various and related to our direct environment such as life, ecosystems, nature, universe, human, brain, food, flavours or even wine. Complex chemistry involves the interactions of elements, their adaptation – and their organization to reach homeostasis. Life and Living systems (Biomes) from ubiquitous microbiomes through higher organisms to entire ecosystems, are involved in their specific interactions and more general ecosystems adaptations. Chemical complexity ruled by the genomes can be found in inter-kingdom interactions at the macrolevel of the ecosystems or at on the organism level when taking account of supersystems such as Holobiontes. After-life involving generally globally transformed organic matter on short term or geological time scales to complex organic matter and geopolymers in diagenetic processes lead to a highly diverse and complex chemistry not found in any chemical database. Pre-Life complex chemistry involves prebiotic chemistry following the only rules of abiotic chemical reactions. These complex mixtures will be found in many meteoritic samples and especially from return samples such as from Ryugu or Bennu, considered as chemical witnesses of processed geomaterials (former planets or asteroids) in extreme temperatures, pressures and water alteration processes. From this highest diverse and complex chemistry emerged molecules crucial for the early steps of life. We present here concepts and experimental results for the awareness of chemical complexity/diversity, with examples form the interfaces in Biome and Abiomes of (bio)geochemical systems in Life, after-Life and pre-Life stages that sets huge challenges for analytical chemistry to describe the dynamic chemistry herein. References: (1) Ph. Schmitt-Kopplin, D. Hemmler, F. Moritz, R. D. Gougeon, M. Lucio, M. Meringer, C. Müller, M. Harir, N. Hertkorn, Systems Chemical Analytics: Introduction to the challenges of chemical complexity analysis, Faraday discussions, 2019, DOI: 10.1039/c9fd00078j (2) Diederich Ph, T. Geisberger, Y. Yan, C. Seitz, A. Ruf, C. Huber, N Hertkorn, Ph Schmitt-Kopplin Formation, stabilization and fate of acetaldehyde and higher aldehydes in an autonomously changing prebiotic system emerging from acetylene Communications Chemistry, 2023, 6(1) 3 (3) Naraoka H, et al. Soluble organic molecules in samples of the carbonaceous asteroid (162173) Ryugu. Science. 2023, 379(6634):eabn9033. (4) Schmitt-Kopplin Ph, M. Matzka, A Ruf, B Menez, H Chennaoui Aoudjehane, M Harir, M Lucio, J Hertzog, N Hertkorn, RD Gougeon, V Hoffmann, NW Hinman, L Ferrière, A Greshake, Z Gabelica, L Trif, A Steele, Complex carbonaceous matter in Tissint martian meteorites give insights into the diversity of organic geochemistry on Mars, Science Advances, 2023, 9(2), eadd643

PL-9

Keywords
biosystems, geosystems, biotic, abiotic, chemical complexity, homeostatis, biomes, microbiomes, inter-kingdom interactions, supersystems, Holobiontes, geopolymers, diagenetic processes, pre-life complex chemistry, Ryugu, Bennu, bio-geochemical systems, Life, after-Life and pre-Life

364

Interacting spiral waves organize brain dynamics and have functional correlates to cognition

Pulin Gong

University of Sydney, Sydney, x, Australia

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.08]........Quantum brain biology

Abstract
In this presentation, I will discuss our recent discovery of spiral (or vortical) wave patterns—referred to as "brain spirals"—within the human brain during both resting and cognitive task states. These brain spirals exhibit intriguing properties: they rotate around phase singular centres, with the centres themselves propagating across the cortex. I will demonstrate how the properties of these brain spirals, such as their rotational directions and locations, are task-relevant and can be used to classify different cognitive tasks. Additionally, I will illustrate that the interactions of these brain spirals provide a mechanism for flexibly coordinating activity flow between different brain areas during cognitive processing. These findings suggest that brain spirals play an essential role in organizing the spatiotemporal dynamics of the human brain, potentially enabling cortex-wide brain computation to occur in a fundamentally distributed and dynamic manner, and have functional correlates to cognitive processing.

PL-4

Keywords
spiral, vortical wave patterns, brain spirals, task-relevant rotational directions and locations, cognitive tasks, cognitive processing, spatiotemporal dynamics, cortex-wide brain computation

367

Tao Calligraphy Tracing Meditation in Health Recovery 30th Annual The Science of Consciousness by University of Arizona, Center for Consciousness Studies,

Peter Hudoba1,2, Cynthia Hamilton1, Zhi Gang Sha3

1Sha Research Foundation, San Francisco, CA, USA. 2Mount Seymour Medical Clinic, North Vancouver, British Columbia, Canada. 3USS Corp, Richmond, Ontario, Canada

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
Introduction: There is intensive research underway to study the effect of meditation on health. Researchers also report that painting calligraphy can positively influence some illnesses. Although there are different kinds of meditations, it all comes down to mindfulness. The practice of mindfulness involves heightened awareness which can improve our attention, focus, and other mental capacities. There is also a solid body of research indicating that the practice of Mindfulness is having a significant effect not only on the function of the brain, but also on overall health. For several years, the authors have taught and studied the effect of a unique style of meditation where mindfulness (heightened awareness) is achieved by a combination of movement and focus on Chinese Tao Calligraphy. In this practice, the practitioners trace the lines of calligraphy with their fingers and simultaneously chant a Mantra, which enables them to achieve a deep state of mindfulness while maintaining a fully awake state. This unique practice can best be understood as a combination of meditation and Qi Gong (energy practice). Therefore, the healing effect on the mind and body can be quite profound. Methods: Several Progressive IRB approved follow-up studies investigated the efficacy of Tao Calligraphy Tracing Meditation and Mantra Chanting as a plausible complementary treatment for various illnesses. The subjects were asked to repeatedly trace the lines of the Greatest Love Tao calligraphy with their fingers while simultaneously chanting the Greatest Love mantra. This practice was to be carried out for at least 30 minutes, two times a day, for a minimum of 3 months. Results: The study of various illnesses in 96 subjects, using standardized Rand Quality of Life Questionnaire SF36 was completed in 1 month, in 6 months, in 1 year and in 2 years. In 1 month, in 6 months, and in 1 year ANOVA analysis showed that all Indexes exhibited statistically significant positive improvement, while at 2 years, six indexes exhibited statistically significant positive improvement, one index improved but not significantly and General Health index worsened statistically significantly. The study of Breast cancer in 18 subjects used Standardized Quality of Life Questionnaire QLQ-C30, completed at baseline, at 3 months and at the conclusion of the study (6 months). ANOVA analysis showed that all 15 indexes of EORTC QLQ-C30 exhibited positive improvement, one index (Emotional Function) improved statistically significantly. The study of Chronic Pain in 45 subjects used the short-form McGill Pain questionnaire (SF-MPQ) that was filled out at the start of the study and again after three months. An ANOVA analysis revealed a statistically significant improvement of overall pain intensity (PPI) and the category of fearful pain. More detailed results will be shared at the time of presentation. Conclusions: The results of our studies confirmed efficacy of combining Tao Calligraphy Tracing Meditation and conventional medical treatment. Meditation with Tracing Tao Calligraphy was easy to learn, was well tolerated and no complications arose. We found that Tao Calligraphy tracing with chanting the mantra is a useful addition to standard treatment protocols.

C - 8

Keywords
Tao Calligraphy, Mindfulness, Healing, SF36, Meditation, Cancer, Chronic Pain,

370

Vitalism and Naturopathy in Psychedelic Medicine

Matthew Hicks1, Olivia Giguere2

1Synaptic Institute, National University of Natural Medicine, Oregon Health and Science University, Portland, OR, USA. 2Synaptic Institute, Portland, OR, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.12]........Medicine and healing

Abstract
Psychedelic therapy is seeing a rapid rise in popularity both in clinical research and in the greater culture. Because it involves the use of drugs, psychology, and spirituality, professionals from a variety of backgrounds such as physicians, psychotherapists, chaplains, etc. are increasingly becoming interested or directly involved. In this paper the authors describe why naturopathic doctors, with additional training, are well suited to provide psychedelic therapy. Naturopaths are rooted in the non-materialistic metaphysics of vitalism, which is consistent with the concept of the inner healing intelligence widely accepted in the psychedelic therapy community. In addition to the compatible foundational philosophies, naturopaths also possess a wide range of clinical skills including herbalism, pharmacology, and counseling, among others, that can be directly applied to psychedelic therapy and integration.

C - 27

Keywords
Psychedelic, psychedelic therapy, inner organic healing intelligence, vitalism, metaphysics, naturopathy

380

Quantum Gravity

Mark Bailey1, Susan Schneider2

1National Intelligence University, Washington, DC, USA. 2Florida Atlantic University, Boca Raton, FL, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.02]........Quantum field approaches

Abstract
Work in the field of quantum gravity is claiming something astonishing: the fundamental ingredients of reality are not themselves spatiotemporal. Instead, spacetime itself emerges from something more fundamental, something defined in terms of a mathematical structure that dispenses with any spatiotemporal metric. (Seibert 2006, Swingle 2018, Wuthrich, Huggett and Le Bihari, 2021).In this paper we sketch a position in which spacetime emerges from a quasi-temporal reality. We flesh out a view in which there is time in the sense of spacetime, as well as a different, more fundamental, “protemporal” dimension or parameter from which spacetime emerges.

C - 6

Keywords

381

Pixels, Patterns, and Perspectives: The science of holism and reductionism, causality and synchronicity

Sky Nelson-Isaacs

El Cerrito High School, El Cerrito, CA, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.03]........Space, time and the nature of reality

Abstract
The perceived conflict between reductionism and holism is a misconception; they are complementary, akin to quantum physics' complemenTARity. This is evident in the relationship between the frequency and space-time domains, underscored by the physics of holograms, light, and sound, and the mathematics of quantum mechanics. This complementarity manifests in various areas, including digital processing, speech recognition, memory, language, visual perception, AI, and everyday habits. The journey of a photon exemplifies holism, with its intermediate properties influenced by its endpoint, suggesting a relational, subjective universe. This approach supports the idea that synchronicity plays a significant role in the evolution of systems, redefining causation and meaning.

C - 28

Keywords
holism, wholeness, reductionism, complementarity, free will, causation, synchronicity, quantum measurement, cognition, perception, frequency domain

384

ProbingObjective Reduction with Particle Physics

Olivia Seidel, Ben Jones

Advanced Detectors Center, University of Texas at Arlington, Arlington, TX, USA

Categories by Discipline
4.0 Physical and Biological Sciences

Primary Topic Area - TSC Taxonomy
[04.14]........Quantum theories of consciousness

Abstract
The objective reduction (OR) process underpins the Orch OR theory of consciousness. The specific microphysical origin of OR, including the tentative connection to quantum gravity postulated by Penrose, remains under investigation. Among the expected observable consequences of gravity-mediated OR is the collapse of wave function superpositions in essentially any quantum basis, since quantum gravity violates all global symmetries. These reduction processes can be searched for using various types of high energy interferometers. A particularly powerful form of natural interferometer is provided by ultra-high energy cosmic particles showering down onto the Earth. We will discuss the state of the art in tests of wave function collapse required by OR using these particles. In particular, a novel approach using atmospheric neutrinos at the IceCube South Pole Neutrino Observatory directly probes E^2-scaling decoherence with origins at the Planck scale, the expected scale of gravity-mediated OR. This analysis, which leverages the unique properties of neutrino oscillations and the clear glacial ice of the South Pole, and recently published in Nature Physics, achieves a staggering six orders of magnitude improvement in sensitivity past previous E^2 decoherence studies. These findings demonstrate the immense potential of particle physics to directly probe the objective reduction process.

C - 16

Keywords