

**The 10th European SSE Meeting
October 13-15, 2016
Sigtuna, Sweden**



Society for Scientific Exploration
<http://www.scientificexploration.org/>

Proceedings

Edited by

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Society for Scientific Exploration (SSE)

The Society for Scientific Exploration (SSE) is a multi-disciplinary professional organization of scientists and other scholars committed to the rigorous study of unusual and unexplained phenomena that cross traditional scientific boundaries and may be ignored or inadequately studied within mainstream science.

The Society was founded in 1982 by fourteen scientists and scholars and now has approximately 800 members in 45 countries worldwide. The SSE publishes a peer reviewed journal, the Journal of Scientific Exploration (JSE) and holds annual scientific meetings in the USA and periodic meetings in Europe.

Society members include scholars from a broad range of disciplines. Topics addressed in its journal and in its regular meetings cover a wide spectrum, ranging from real or apparent anomalies in well-established areas of science to paradoxical phenomena that belong to no established discipline. This unique multidisciplinary perspective provides challenging opportunities for creative professional dialog and innovative research.

In addition to the Journal and the Annual Meetings, the SSE supports a Young Investigators Program. This program is designed and implemented primarily by its participants, and its purpose is to provide information and resources pertaining to the scholarly study of anomalous phenomena and other frontier areas of science. An informal discussion in which many members participate can be found in the SSE Yahoo Group.

Mission statement

The primary goal of the international Society for Scientific Exploration (SSE) is to provide a professional forum for presentations, criticism, and debate concerning topics which are for various reasons ignored or studied inadequately within mainstream science. A secondary goal is to promote improved understanding of those factors that unnecessarily limit the scope of scientific inquiry, such as sociological constraints, restrictive world views, hidden theoretical assumptions, and the temptation to convert prevailing theory into prevailing dogma. Topics under investigation cover a wide spectrum. At one end are apparent anomalies in well-established disciplines. At the other, we find paradoxical phenomena that belong to no established discipline and therefore may offer the greatest potential for scientific advance and the expansion of human knowledge.

The Society encourages such investigations for several reasons that may appeal to different communities:

- To the research scientist, we commend the intellectual challenge of explaining away an apparent anomaly or seizing the new knowledge presented by a real one.
- To the student scientist, we point out that science does not begin with textbooks: it begins with the unknown and ends with textbooks.
- To the nonscientist, we acknowledge that deep public interest in some of these topics calls for unprejudiced evaluation based on objective research.
- To the policy-maker, we point out that today's anomaly may become tomorrow's technology.

Agora for Biosystems, Sigtuna

More information is found on page 3 among abstracts, web: www.agoraforbiosystems.se.

The Swedish Society for Psychical Research, SSPR

web: www.parapsykologi.se

The society was established in the year of 1947 in Stockholm with the purpose of informing about scientific research in parapsychology, which includes phenomena like telepathy (mind-to-mind communication), clairvoyance (remote viewing), precognition (knowing something in advance, for example, true dreams), or presentiment, (that the body reacts in advance) and also psychokinesis, i.e. the influence on objects without using muscles, even from a distance. Healing is included here too, when a practitioner seems to be able to influence biological organisms, even from a distance. Another area is the phenomena and experiences that suggest that something survives bodily death. Examples of such phenomena are out-of-body experiences, near-death experiences, memories suggesting past lives (reincarnation), apparitions, and EVP, unexplainable voices recorded on electronic devices or by computers.

The SSPR arranges lectures on this research by prominent researchers, as well psychologists, physicists, biologists, statisticians as literary scholars or theologians. The Society also organizes occasional scientific seminars and conferences, and reports to the members about scientific conferences abroad. We have regular contact with researchers worldwide, and also offers regularly invited leading scientists for lectures, both from the US and Europe. The results of a huge number of scientifically carried out studies support the notion that the phenomena may be genuine and not due to artefacts or chance.

Conference committee

Göran Brusewitz, Anders Rydberg, Chantal Toporow (email: sseaspiringexplorers@gmail.com)
Assistants: Hans Liljenström, Ulrika Nilsson, Jonas Skiöldebrand, Jan Fjellander (webpage), Maria Krull (webpage) and Tony Eckardt (recordings)

Program committee

Göran Brusewitz, Program Chair, co-Chair Anders Rydberg and Chantal Toporow.
Advisors: Jan Dalkvist and Gudmund Hedenskog.

Sponsors: John Björkhem Memorial Foundation and the Sigtuna Foundation.

Programme for 10th Biennial European Conference of the Society for Scientific Exploration (SSE)

Wednesday 12th October

19:00- Welcoming Reception
22.00

Thursday 13th October

8:15 Registration
9:00 Welcoming Remarks (Bengston/Brusewitz/Rydberg)

Session 1: Consciousness – two approaches

9.15 Keynote talk - Johnjoe McFadden
EM field theory of consciousness

10:00 **Poster Session (with coffee break) on Quantum biology and Consciousness**

- Antonio Giuditta - Brain metabolic DNA
- Alex Perekhod - Small Bugaika: Enigma of Vanished Village
- Lydia Gianouloupoulou - Quantum aspects and detection of geophysical anomalies
- Drobny, Saniova: Delirium – our experience in clinical picture and EEG features.

11:00 Keynote talk - Stuart Hameroff
The 'Meyer-Overton correlation' explains quantum biology and the origin of consciousness

11:45 Hans Liljenström
About Agora for Biosystems

12:00 Invited talk - Olle Johansson
Adverse health effects of modern electromagnetic fields from wireless telecommunication, such as mobile phones and WiFi

12:30 **Lunch**

Session 2: Quantum biology and Consciousness

13:30 Invited talk - Sarah Knox
Biophysics, Systems Dynamics and the Current Biomedical Research Framework

14:00 Panel discussion on Quantum biology and Consciousness with:
Johnjoe McFadden, Stuart Hameroff, Hans Liljenström and Sarah Knox

15:00 Rafael Melsert
Entangled Biophoton Fields Modulated and Codified by Consciousness on Mind-Body Communication

15:30 **Poster Session (with coffee break) on Quantum biology and Consciousness**

Session 3: Electromagnetic activity and interaction

- 16:00 Michal Cifra
Electromagnetic activity of cells from spectral perspective
- 16:20 Invited Talk - Anirban Bandyopadhyay
The origin of for example electromagnetic noise harvesting of proteins: The concept of a frequency wheel
- 17:00 Daniel Fels
Experimental evidences for electromagnetic cell communication between unicellular organisms
- 17:15 Anders Rydberg
On low frequency magnetic exposure of human and amoeba cells and the possibility of a windowing effect
- 17:30 Invited Talk - Johnjoe McFadden
Quantum Biology

Session 4: Bio-fields

- 18:00 Flavio Burgarella
Burgarella Quantum Healing (BQH) in Medical Practice: an application with a clinical case of knee pain
- 18.15 Göran Brusewitz
Two electrical systems in the body: a basis for a new biology (Becker and Nordenström)
- 18.30 Beatriz Villarroel
The search for extraterrestrial intelligence: modern strategies, results and implications
- 18:45 Shamini Jain (pre-recorded)
Biofield therapies in Clinical Care
- 19:00 Rita Pizzi (pre-recorded)
Artificial intelligence meets natural consciousness: is it possible to codify qualia ?
- 20:00 **Dinner**

Friday 14th October

- 8:15 Registration
- 8:30 Welcome to new delegates

Session 5: Parapsychology – an overview

- 8:30 Erlendur Haraldsson
Comparative study of physical mediumship. Similarities and differences in the phenomenology of outstanding physical mediums.
- 9:00 Keynote talk - Rupert Sheldrake
The Extended Mind
- 9:45 Invited talk - Etzel Cardeña
The Experimental Evidence for Parapsychological Phenomena: A Review of Metaanalyses
- 10:15 **Poster Session (with coffee break) on Parapsychology and Consciousness**
- Göran Brusewitz, Adrian Parker, David Luke, Annekatrin Puhle and Ross Friday - Pilot Studies of Physiological Connectedness Among Twins in Relation to Attachment
 - Marco Zdrenka - Individual differences and psi performance in forced-choice precognition experiments: A meta-analysis (1935-2015)
 - Ana Flores - Does mind influences matter? A replication of the correlation matrix method
 - Friedrich Balck – Humans as Sensor for Physical Experiments with Subtle Matter

Session 6: Telepathy and healing

- 10:45 Invited talk - Adrian Parker
"Not in Your Life-time": The Ganzfeld Revelations
- 11:15 SSE PRESIDENTIAL TALK: William Bengston (pre-recorded)
Transitioning to Pragmatic Applications of Scientific Anomalies
- 12:00 **Lunch**
- 13:00 Visit to Uppsala: Cathedral, Anatomical theatre and talk about Emanuel Swedenborg
- 13:00-15:30 Free time for meetings and discussions for delegates not attending the visit to Uppsala
- 15:30 **Poster Session (with coffee break) on Parapsychology and Consciousness**

Session 7: Parapsychology and consciousness

- 16:00 Jan Dalkvist
Is telepathy - if it exists - an electromagnetic phenomenon?
- 16:15 Panel discussion on Parapsychology and Consciousness with: Etzel Cardeña, Adrian Parker, Jan Dalkvist and Rupert Sheldrake
- 17:45 Anabela Ventura
Intention and Brain-to-Brain Communication with non-invasive techniques

Session 8: Mind – matter and dowsing

- 18:00 Invited talk - Michal Teplan
REG mind - matter interaction: novel data analyses and different operator intentions
- 18:20 Marie Ryd
Dowsing a psitrack
- 18:35 Jeffrey Keen
Quantifying the Mind's Perception of the Laws of Physics and the Cosmos, by Dowsing Abstract Geometry
- 18:50 Brenda Dunne
Consciousness and the life force
- 20:00 Banquet Dinner**

Saturday 15th October

Session 9: Energy and communication

- 8:45 John F. Caddy
What my tinnitus tries to tell me about the Milky Way
- 9:00 Konstantin Korotkov
Science of measuring energy fields: Revolutionary instrument to reveal energy fields of human and nature
- 9.15 Georg Wikman
Endogenous electrical pulses from egg membranes: a quantum phenomenon?
- 9:30 Group photo
- 9:45 Jan Fjellander
The need of libraries in Parapsychology
- 10:00 **Poster Session (with coffee break) on Parapsychology, life and Consciousness**
- Francesco Alessandrini, Irene Menis and Roberta Rio - The process of thought forming and the mechanic of intuition
 - Eleonora Natalia Eliaz and C.M. Chantal Toporow - Phenomenology of the encounter, working with destiny using the Goethean observation method
 - Natuschka Lee: The Search for the Definition of Life (the *Other* Missing Link in Life Sciences) on Earth and in the Universe

Session 10: Quantum physics, consciousness and time

- 10:30 Alex Hankey
Direct Mind2Mind Communication: its Basis in Bio-regulation

- 10:45 Hans Liljenström
Consciousness and Time
- 11:00 Panel discussion - Different interpretations on David Bohm's ideas of quantum physics and consciousness with: Hans Liljenström, Paavo Pyykkänen, Stuart Hameroff and Georg Wikman
- 11:30 Antonio Giuditta
The phylogenetic origin of mind

Session 11: Models of consciousness

- 11:45 Ingrid Fredriksson
Can consciousness influence our epigenetics or can epigenetics influence our consciousness?
- 12:00 Riccardo Manzotti
A mind-object theory: is consciousness an object?
- 12:30 Jan Pilotti
Conscious spacetime
- 13:00 Closing of the 10th Biennial European Conference of the Society for Scientific Exploration (SSE)

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Electromagnetic field theory of consciousness

Johnjoe McFadden, University of Surrey, United Kingdom.

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The binding problem of consciousness is to understand how information encoded in the firing of billions of neurones in widely separated regions of the brain somehow comes together to generate a single unified state of consciousness. The conventional view of neurones as, essentially, biological wires, provides no clue as the information in one wire should be spatially separated from the information in all the other neurones. Quantum theories of consciousness attempt to overcome this problem by proposing that some of the matter of neurons, such as microtubules, become quantum coherent, essentially a kind of matter field, where the matter-based information is physical unified. However, quantum coherence, even when it is found in nature, involves very small systems, such as within single protein molecules or tiny clusters of pigment molecules. Large-scale quantum coherence of matter, as required by quantum consciousness theories, is only possible at temperatures close to absolute zero.

However, you do not need quantum coherence of matter to unify information in the brain. Every time a neurone fires it generates an electromagnetic pulse. Billions of firing neurons generate the brain's electromagnetic (EM) field which reflects of all of the brain's neural activities and which automatically, integrates all of that information into a single unified physical system. The brain's EM is routinely detected by EEG and MEG diagnostic techniques and thereby has the advantage over other potential substrates of consciousness of being *real*. It has been known for decades, that perturbations in the brain's EM field correlate with awareness. The conscious electromagnetic information (cemi) field theory goes further by proposing that the brain's EM field IS consciousness. Experimental evidence will be examined and shown to be entirely consistent with the cemi field theory. The cemi field theory provides solutions to many of the intractable problems of consciousness—such as the binding problem—and provides new insights into the role of consciousness, the meaning of free will and the nature of qualia. It thus places consciousness within a secure and feasible physical framework and provides a route towards constructing an artificial consciousness.

The 'Meyer-Overton correlation' explains quantum biology and the origin of consciousness

Stuart Hameroff MD

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In the 19th century, gases with different types of chemical structures were discovered to have reversible 'anesthetic' properties, causing animals who breathed them to become unresponsive/'unconscious', but 'wake up' when the gas was exhaled. For each gas, the required concentration to anesthetize any animal – salamander, mouse, horse or human – was identical. Seeking a unitary factor, at the turn of the 20th century Hans Meyer and Charles Overton independently discovered that anesthetic potency for all gases correlated precisely with their solubility/binding (by quantum London forces) in non-polar, lipid-like regions akin to olive oil, e.g. 'pi electron resonance clouds'. Theorists since Schrodinger have related consciousness, and life, to biological quantum coherence, but the brain appeared too 'warm, wet and noisy' for seemingly delicate quantum effects. However plant photosynthesis proteins utilize quantum coherence mediated through pi resonance groups in non-polar (not 'wet') regions, pumped by protein mechanical vibrations (warm, but coherent, not noisy). Quantum resonances in a scalar hierarchy of terahertz, gigahertz, megahertz, kilohertz and hertz (EEG) frequencies have been found in neuronal microtubules by Anirban Bandyopadhyay's group,¹⁻³ and genomics, proteomics and optogenetics point to microtubules mediating anesthetic action in preventing consciousness.^{4,5} Molecular modeling shows anesthetics bind and act among contiguous pi resonance groups traversing tubulin and microtubules in quantum-friendly channels dubbed the 'Meyer-Overton quantum underground'.^{6,7} We've recently shown that anesthetics alter pi resonance terahertz oscillation frequency proportional to potency – a Meyer-Overton correlation for quantum vibrations.⁸ Shielded from polar charges, pi resonance dipole oscillations coupled to mechanical resonances in a 'Meyer-Overton quantum underground' can avoid 'decoherence', and account for quantum biology and consciousness,⁹ including seemingly non-local effects reported in parapsychology.

References 1) Sahu et al (2013) *Biosens. Bioelectron.* 47: 141-148.

2) Sahu et al (2013) *Appl. Phys. Lett.* 102: 123701.

3) Sahu et al (2014) *Scientific Reports* 4:7303-1,

4) Pan et al (2008) *Proteomics* 8:2983,

5) Emerson et al (2013) *J Am Chem Soc* 135:5389

6) Craddock et al (2012) *PLoS ONE* 7: e37351.

7) Craddock et al (2014) *J Roy Soc Interface* 05/11(100). DOI:10.1098/rsif.2014.0677,

8) Craddock et al (2015) *Curr Topics Med Chem* 15 (6) 523-533(11),

9) Hameroff & Penrose (2014) *Phys. Life Rev.*, 11(1):39-78.

Agora for Biosystems

by Hans Liljenström, Agora, Sigtuna

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Agora for Biosystems (AGORA) is an independent research center, directed by biophysicist, Prof. Hans Liljenström, and hosted by the Sigtuna Foundation. AGORA was founded by Liljenström, Peter Århem and Clas Blomberg in 1997, under the auspices of the Royal Swedish Academy of Sciences with a scientific advisory board of renowned members from many different countries and research fields. Physically, AGORA is located in Sigtuna, Sweden, close to universities in Uppsala and Stockholm and to the Stockholm Arlanda airport. The AGORA is intended to provide a creative environment for interaction between theorists and experimenters in the life sciences and related fields of research. This primarily includes multidisciplinary research, but also conferences, seminars, graduate courses, and summer schools in the interface of biology, medicine, physics, computer science, and theory of science. The purpose is to promote and advance the scientific knowledge and understanding of the interconnected systems of organisms and their environment. A further aim is to create a platform for dialogues between science and the humanities.

The research at AGORA was initially organized in five larger long-term programs, including the origin and evolution of life, as well as the mind-brain relation. Currently, the main focus is on the human nature, in particular connected to neural, cognitive and conscious aspects, and how we as humans interact with ourselves and other species. In collaboration with the Sigtuna Foundation, the AGORA is running a project, the Human Nature Exploration, with the aim to increase our understanding of what it is to be human, what determines our cognitive and conscious capacities, and what is our potential for change. The work also relates to the scientific and philosophical problems of intentionality and free will.

Although the work of AGORA is based on science, it is open to dialogue with other parts of society, including various cultural traditions. This includes dialogue with researchers and scholars on world views and philosophy of life. Such dialogues also implies that new insights and theories in science should be explained and discussed, e.g. at symposia and seminars involving specific interest groups, as well as at the general public. In addition, this type of dialogue is carried out in various types of publications and other media.

For further information, see www.agoraforbiosystems.se.

Adverse health effects of modern electromagnetic fields from wireless telecommunication, such as mobile phones and WiFi

Olle Johansson, The Experimental Dermatology Unit, Department of Neuroscience, Karolinska Institute, Stockholm, Sweden, olle.johansson@ki.se

The body of evidence on EMF requires a new approach to protection of public health; the growth and development of the fetus, and of children; and argues for strong preventative actions. These conclusions are built upon prior scientific and public health reports documenting the following:

- 1) Low-intensity (non-thermal) bioeffects and adverse health effects are demonstrated at levels significantly below existing exposure standards.
- 2) ICNIRP and IEEE/FCC public safety limits are inadequate and obsolete with respect to prolonged, low-intensity exposures.
- 3) New, biologically-based public exposure standards are urgently needed to protect public health world-wide.
- 4) It is not in the public interest to wait.

In my presentation I will hint at the historic background of electricity and electromagnetic fields, how suspicions early arose that such fields and signals could have negative health effects, and how it lead to today's public discussion all over the world. I will also touch upon the functional impairment electrohypersensitivity, and which laws and regulations that guide us regarding such a disability. I will go into more depth about the scientific research results regarding adverse health effects of electromagnetic fields, and the urgent need for completely independent research projects to be inaugurated immediately to ensure our public health. These projects must be entirely independent of all types of commercial interests; public health can not have a price-tag! It is also of paramount importance that scientists involved in such projects must be free of any carrier considerations and that the funding needed is covered to 100%, not 99% or less. This is the clear responsibility of the democratically elected body of every country.

Biophysics, Systems Dynamics and the Current Biomedical Research Framework.

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What I am doing is highly relevant for consciousness, because biomedical research is defining consciousness as 'brain based', i.e., local. Quantum theory allows for non-locality. Why not mind? Biomedicine won't consider anything besides matter because they believe that matter is primary and all causal. Which is why I wrote my book. Science has become the new 'religion' and the catechism of materialism is about 90 years out of date. I stopped going to 'consciousness' conferences because it drove me crazy. Phenomena such as distance healing, telepathy, etc. are much more understandable if we aren't 'transferring' thoughts (it happens faster than the speed of light) but are all part of a 'whole', like waves in the ocean. It also explains quantum entanglement from a different perspective. What I have discovered in biomedicine and what I wrote about in the book (Science, God and the Nature of Reality: Bias in Biomedical Research), is that even physical healing is influenced by our spiritual state, because it influences the energy grid in the body (topic of my current cancer research).

Panel Discussion on Quantum Biology and Consciousness:

with Johnjoe McFadden, Stuart Hameroff, Hans Liljenström and Sarah Knox

Questions that can be addressed and discussed: What is quantum biology? What do the quantum physical processes mean for the biological organisms? These processes do exist in e.g. photo synthesis, and may be also in navigation capacity for animals and in the identification of smell in our olfactory sense? Do quantum physical processes okay any role in how the brain works? If so, is there any connection with our consciousness? What is the relationship between brain and consciousness and what are the most recent news in this area? Are there any problems, or reasons, with quantum processes to be involved in the creation of consciousness? Have quantum processes been found to be involved in processes that in the beginning was regarded as impossible? Have the attitudes, or facts been changed in these matters?

Entangled Biophoton Fields Modulated and Codified by Consciousness on Mind-Body Communication

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This work proposes speculative ideas about physical processes sustaining the communication from Mind and Emotions to every cell, back-and-forth, which are mainly nested upon entangled biophoton fields. It's a puzzle of well-established light phenomena that can be thoroughly modulated by Consciousness.

The model rests upon the Psychoenergetic Model of William Tiller, which theoretical basis comes from the particle/pilot wave concept. He builds a duplex base Reference Frame, encompassing Mind, Emotions and cells.

The information from Psychological domains emerges from Quantum Vacuum codified upon biophotons, in a phenomenon akin a Dynamical Casimir Effect and light gets immediate interface with DNA molecules, nonlinear and birefringent.

These primary biophotons emanate from Quantum Vacuum on a squeezed state, which is a nonclassical pattern of light carrying uncertainty (as stated by Heisemberg's Principle) on its minimum value, with very low quantum noise. In consequence, they offer the best conditions to be modulated on quantum optical communication process.

Through Spontaneous Parametric Down-Conversion, a Pump (primary biophotons field on squeezed state) is converted on two entangled biophotons fields: Signal and Idler, establishing the main physical basis to a Biological Holographic Network. The former is the reference field, while the latter directly interacts with cells. Both can determine coherent (health) and/or incoherent (disease) patterns.

The formed hologram is a meaningful candidate to generate the paraxial Laguerre-Gaussian mode of light propagation, which determines to Orbital Angular Momentum (OAM) of biophotons degrees of freedom that are independent from their Spin Angular Momentum (SAM). There are two ways through which a light beam can rotate:

- through polarization vectors - SAM;
- through the wave front structure - OAM.

Transfer of OAM from biophotons to cells gives the due energy to biomolecules move. On the other hand, biophotons carrying OAM can be modulated and codified to support logical operations. So, through codification of entangled biophotons fields, Consciousness can establish a multiplex system to simultaneously vehicle information coming from Mind and Emotions to cells (back and forth) and energy to make biomolecules move to react on the due place, on the proper time and under the adequate sequence.

OAM states can, thus, be useful for development of biological quantum information protocols that can be imprinted and codified by Consciousness upon primary biophotons, on a squeezed state,

allowing the continuous flow of vital information from Mind and Emotions to Cells, back and forth, on a real time feedback loop about psychological, physiological and/or pathological conditions.

A secondary biophotons field that has been studied since the 1920's is generated at every frame of time (relations to biological clocks) on the inner membrane of mitochondrias, by a diversion of the pathway leading from breathed Oxygen to Water through Electron Transport Chain, tightly coupled to Oxidative Phosphorylation.

Through immediate interaction with circular mitochondrial DNA, this secondary biophotons field vehicles updated information about the operational condition of each cell to Mind and Emotion domains, through holographic patterns and on real time, allowing its integration and coordination, constituting a possible physical basis for a true Psycho-Neuro-Endocrine-Immune System.

Electromagnetic Activity of Cells from Spectral Perspective

Michal Cifra

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Abstract: Based on our recent research, we summarize the current hypotheses, theories and experimental evidence concerning the electromagnetic activity of living cells. We systematically classify the bio-electromagnetic phenomena in terms of frequency and we assess their general acceptance in scientific community. We show that the electromagnetic activity of cells is well established in the low frequency range below 1 kHz and on optical wavelengths, while there is only limited evidence for bio-electromagnetic processes in radio-frequency and millimeter-wave ranges. We conclude with proposals for future research which should elucidate the gaps in our knowledge of high-frequency bioelectromagnetic activity.

The origin of mechanical, ionic, electromagnetic and thermal noise harvesting of proteins: The concept of a frequency wheel

Lokesh Agrawal and Anirban Bandyopadhyay¹

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Abstract:

Thus far we knew that proteins, the building block of life only vibrates mechanically and manages the ion flow. However, we explore another world of proteins. We suggest that the way we study proteins is only one or few bands of a frequency wheel, a protein is designed to harvest thermal noise, mechanical noise, electrical noise, and electromagnetic noise to process information in a rhythmic way. We have tried to compare protein as a switch processing binary bits, as a transistor as any complex electronic chip we think of, but never made an attempt to learn what it wants to tell. As we discover collective response of proteins through frequency wheels, it is very exciting to see that the same is found in microfilaments like microtubule, in the proteins and even in the cluster of neurons. This is an amazing integration of information never seen or predicted before. The finding tells us that the faith that neuron membrane is doing everything in the brain as contemporary connectom and other projects do, is like thinking that skins of a human body does everything. We propose to construct frequency wheel for every single biological systems, e.g. brain is a giant 12 layers of cavity resonators one inside another representing 1031 fundamental frequency based 137 rhythm operating machine that can sustain 10^{66} different rhythms following our finding. This is far far from 10^{22} bits of calculations, there is not "bits" in the brain, only "time-cycles" or rhythms.

Experimental evidences for electromagnetic cell communication between unicellular organisms (*Paramecium caudatum*)

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Abstract

The organization of life demands information flow either from within or from outside the organism. Such information flow - often described as signal(s) – is either transmitted mechanically, chemically or electromagnetically. While chemical signaling is continuously explored since more than a century, electromagnetic signaling had its ascents and descents in the first half of the 20th century and ever since became a glaringly neglected topic in cell communication studies. Over the last decade, however, research on electromagnetic cell signaling experiences a renaissance.

Electromagnetic (EM) waves result mainly from oscillating polar structures and reactions involving energetically excited atoms/molecules. The latter are assumed to be the major source for visible (and ultra violet) photons being the main candidates for electromagnetic cell signaling because of a good signal-to-noise ratio in the cytoplasmic thermal (infrared) bath.

Chemical signals play important roles, no doubt, but EM signals have several advantages for biosystems, for example the extremely fast (light speed) signaling velocity. They, further, are assumed to i) play a role in organizing unity with e.g. multicellular organisms, ii) establish coherent behavior between cells, iii) correlate with health and its disorder, and iv) have the potential to act as signals.

My major interest lies in understanding of the potential function of EM waves as physical signals emitted from one cell population to another. For testing my hypotheses I am performing experiments involving the separation of cell populations of *Paramecium caudatum* (phylum: Ciliata) with chemical barriers that still allow the transmission of EM waves. This is easily achieved with cuvettes by placing a smaller one into a bigger one and then adding the cells to both of them. After keeping such pairs of cuvettes for 48 hrs in darkness, I assess cell division rate in dependence of the presence or absence of neighbor cells (the control).

In many experiments (published in three papers over the last years) I found strong evidence for i) non-chemical regulation of population size, i.e. physical quorum sensing, ii) effects across the species border, and iii) linkage between populations and the environment, resembling patterns in entanglement experiments. Data also suggested the potential of mortality-compensation as well as decision-making processes based on sensing cell numbers. Some interpretations on signal frequencies are possible due to different effects coming from normal glass or quartz separation.

In my presentation I will discuss these results with reference to future experiments as well as their potential impact for future studies about neuronal signaling, evolution and ecology.

Quantum biology

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Abstract

Quantum mechanics is the weirdest of sciences that allows particles to inhabit multiple locations in space and time at once, travel through classically-impenetrable barriers and possess spooky connections across vast regions of space. Yet the science is usually considered to be limited to the tiniest components of matter, such as protons or atoms. As systems get bigger, classical behaviours in which particles tend to be in one place or another, cannot penetrate impenetrable barriers and are not spookily connected, tends to dominate. However, in the last two decades experimental evidence for the weird aspects of quantum mechanics has been found in a range of biological phenomena such as avian navigation, enzyme action, photosynthesis, the sense of smell and mutation. In this talk I will review advances in quantum biology and discuss its relevance to that most fundamental question of biology: what is life?

On low frequency magnetic exposure of human and amoeba cells and the possibility of a windowing effect

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Tissue engineering is a rapidly developing interdisciplinary field that applies the principles of cell biology, developmental biology, molecular biology, and biomimetic engineering to the regeneration of new tissues for replacement therapies in clinical applications. One of the therapies is using magnetic field for stimulation of the bone growth. In order to better understand the molecular mechanisms of magnetic fields on bone growth, i.e. cell division, a genetically tractable easy to grow model is desired. Along this line we have investigated the effect of magnetic fields on cell division of Osteoblast, Fibroblast and Dictyostelium discoideum (*D. discoideum*), a social amoebae that exhibits many characteristics similar to multicellular eukaryotic organisms thus comparable with human cells. Together with the simple lifecycle of *D. discoideum* it is therefore commonly used as a model organism. The possibility of a windowing effect in relation to frequency, magnetic exposure level and different modulation formats of the magnetic wave will be discussed.

Burgarella Quantum Healing (BQH) in Medical Practice: an application with a clinical case of knee pain

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We will describe a clinical application of the transformative aspects of the Burgarella Quantum Healing (BQH) which characteristics are: non-locality (the ability to communicate without signals); discontinuity (the ability to take quantum leaps without going through the intermediate steps) and tangled hierarchy (the capacity for causally circular relationship).

Mr A., is a 66 year old man with a knee pain that prevented him from genuflecting. During a session of BQH I and a group of 4 students, interconnected via the circular motion of the heart field, we create with Zhineng Qigong a quantum field through a vortex formed by moving counterclockwise the left hand to haunch. As an example of mental focus to promote healing processes we directed the intention of healing by repeating three times the multiplication table of 4. For us multiplication tables represent a number sequence repeated with logic in the early stages of life when we had all the healthy organs. We can therefore assume to tie the tables to the concept of health so that the two things (tables and health) are interconnected, establishing a bond that will endure for a lifetime. As a result, when in life we lose health, this can be traced back to the original status through the rediscovery of this "quantum connection". It is then necessary to associate the Active Imagination of recovery with the repetition of the tables. By convention I associated the normalization of bone and joint system with the multiplication table of 4. At this point of the process it is sufficient that one of the participants move his "mind in the patient's body". Immediately after I did not feel the vibration of Qi in the hand, while the patient felt the vibration in the knee (tangled hierarchy). At this point we stopped the practice. Result: Mr A., no more complained knee pain and performed normally genuflection (discontinuity).

Two electrical systems in the body, a basis for a new, holistic biology (Becker and Nordenström)

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Abstract

In the beginning of the last century, much research was done to find out how a biological organism is able to heal wounds, to develop and to determine structural development (Driesch, Weiss, Gurwitsch, Burr and Northrop).

Some decades later, an American orthopedic surgeon, Robert O Becker followed these lines when he wanted to understand how to apply an electromagnetic field to repair a bone, and how to recreate a lost limb. His research led him to discover a direct current system in living organisms, vital for an organism to control the development from an embryo to a complete and differentiated organism. The control system is a primitive and analogue system. It exists either side by side with the central nervous system, or in the tissue surrounding the central nervous system, the glial cells and the Schwann cells. Becker came across the theories of the Hungarian Nobel Prize Laureate Albert Szent-Györgi on biological semiconducting, and also theories from William Keeton that this current and related field is involved in the navigation for birds and other animals.

Björn Nordenström was a Swedish Professor in radiology at the Karolinska Institute. Being fascinated by the x-ray images of malignant tumours, he finally found a great number of local electric flows of current that together made up an electric transport system in the body, a system he called Biologically Closed Electric Circuits. One of the most important local is the one of blood vessels. This is the third circulation system in the body, a mechanical transport system for oxygen and nourishment, but also an electrical transport system, absolutely vital to understand biological processes, as commented by four distinguished medical scientists in his book. The discovery can be the most important discovery during the last century, but still not acknowledged.

Both Becker and Nordenström claimed their discoveries to be able to explain acupuncture, and Becker even that his discovery could explain parapsychological phenomena, including healing and the existence of an aura.

Possible greater ideas along these lines come from the HeartMath group, Beverly Rubik and the Norwegian physician Vilhelm Schjelderup, but also Stanley Krippner.

The search for extraterrestrial intelligence: modern strategies, results and implications

Beatriz Villarroel, Uppsala University, beatriz.villarroel@physics.uu.se

The search for life beyond Earth is driving a large amount of research in astronomy, directly or indirectly. Today we know of more than 3000+ confirmed exoplanets outside our Solar System and it is estimated that of about 5-20% of all stars in the Milky Way have exoplanets within the habitable zone. Moreover, the comet lander Rosetta recently reported detecting glycine and some of the simpler biomolecules, supporting the idea of that life might have come to Earth via comets – simultaneously making it possible for life with similar chemistry to be much more widespread in space than thought before. There are ongoing efforts to analyze exoplanet atmospheres searching for signatures of life. While such studies primarily focus on Earth-like life and environments, there also some more direct strategies to search for advanced extra-terrestrial civilisations through active listening with large radio arrays and telescopes.

In this talk, I will highlight some of the ongoing efforts in the search for advanced extra-terrestrial civilisations capable of astroengineering. I will discuss various strategies, including my own project where we searched for physically “impossible” effects using images and data of our Sky over three different time epochs. Finally, I will also discuss possibilities for locating and identifying unidentified phenomena on the sky using the meteor camera network in Sweden. Beyond its importance in astronomy research, the camera opens up a new window of possible interest for the SSE.

Biofield Therapies in Clinical Care

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Biofield therapies are perhaps the oldest clinical application of practitioner-assisted approaches to stimulate healing responses in those suffering from a particular ailment or disorder. Current forms of biofield therapies include Healing Touch, Reiki, Laying-on-of-Hands, Therapeutic Touch, Pranic Healing, and others. Because patients (particularly palliative care, chronic pain, and cancer patients) are high users of biofield therapies, there is significant interest in understanding whether these therapies are efficacious for certain ailments. Further, there is a need to better understand how these approaches may compare to other models of care in terms of efficacy, and what potential mechanisms of action may be for such approaches. This presentation will highlight the state of the science with respect to clinical applications of biofield therapies. We will summarize the evidence from recent systematic reviews, which indicate strong evidence for biofield therapies in acute pain, moderate evidence for behavioral symptoms of dementia, moderate evidence for pain and anxiety in hospitalized populations, and mixed evidence for cancer symptoms. Recently conducted RCTs with biofield therapies will also be discussed, including the impact of hands-on healing therapy vs. mock therapy and wait-list control group on persistent cancer related fatigue and cortisol variability in breast cancer survivors, effects of Healing Touch vs. treatment as usual for PTSD among returning veterans, and the impact of Healing Touch vs. relaxation on natural killer cell cytotoxicity and depression in cervical cancer patients undergoing chemoradiation. The presentation will interweave discussion of methodological issues, gaps in knowledge, and mechanistically-related hypotheses, including dosage and delivery, the role of placebo elements, selection of appropriate biological outcomes, and optimal study designs. The presentation will end with recommendations for best next steps to further rigorous clinical research in biofield therapies.

Artificial intelligence meets natural consciousness: is it possible to codify qualia ?

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In past researches our group experimented a method to analyze multiple neural signals from MEA cultures by means of a novel self-organizing ANN, highlighting the attractors in which the corresponding dynamic system is evolving [1,2]. If the attractors show to be chaotic, this means that the neural signals are individually self-organized and, analyzing more signals together, that there is a form of coherence between signals. The ANN can also highlight the time course of this form of coherence. In particular, it can identify different attractors with a unique code. The ANN allows to attribute the same codes to similar but not identical brain events, reaching the necessary range of flexibility.

The method has been tested on signals from intracranial electrodes provided by the group of M. Massimini (University of Milan, Italy), comparing wakefulness and NREM sleep signals from 34 electrodes and allowing to identify the codes of these different consciousness states.

In the current study we process signals from a 14 electrodes EEG system connected to immersive glasses that allow a realistic audiovisual experience. A Matlab procedure synchronizes the acquired signals with various sensory experiences presented in a video. Aim of the research is to test the interconnections among brain areas in presence of sensory and emotional stimuli, and show how similar stimuli give rise to chaotic attractors identified with identical or similar codes. We would be tempted to state that these codes can be a way to identify qualia, following the path laid out by Walter J. Freeman (see his entire bibliography or the review in [3]).

1. R. Pizzi, G. Cino, F. Gelain, D. Rossetti, A. Vescovi (2007). Learning in human neural networks on microelectrode arrays. BIOSYSTEMS, vol. 88, p. 1-15

2. R. Pizzi, D. Rossetti, G. Cino, D. Marino, A.L. Vescovi, W. Baer (2009). A cultured human neural network operates a robotic actuator. BIOSYSTEMS, vol. 95, p. 137-144

3. W.J. Freeman, Neurodynamics: An Exploration in Mesoscopic Brain Dynamics. Springer 2000.

Comparative study of physical mediumship. Similarities and differences in the phenomenology of outstanding physical mediums.

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This is a historical paper analyzing the detailed records that were kept of the séances of Indridi Indridason by the Experimental Society, Sir William Crookes records of D. D. Home's séances, and Schrenck Notzing and Anita Gregory's excellent records of sittings with the Schneider brothers. On this basis we can compare three outstanding physical mediums and analyze how the frequency and prominence of the various physical phenomena differed among them, such as movements of objects, levitations of the medium, visual materializations and sitters being touched as if by invisible hands.

The emphasis will be on Indridi Indridason (1883-1912) who became a medium in 1904 when he accidentally joined the first sitter group in Iceland. The table started immediately to move violently and other phenomena followed. The Experimental Society was founded by academics to investigate his phenomena and detailed protocols were kept of his sittings.

With Indridi movements of objects abound, but the rare phenomena of direct voices of communicators were more much prominent with Indridi than with any of the other mediums. They were heard in 77% of the sittings, in different locations of the séance room and away from the medium. Singing was also heard, sometimes of two trained singers singing at the same time, a soprano voice and a male bass voice.

Movements of objects was most common with Home, occurred in 81% of his sittings, and similarly with Rudi Schneider. Levitations of the medium were more often observed with Indridi than the other mediums. Sometimes he was forcefully levitated and two men were needed to hold him on the ground.

Sometimes a human figure was seen in a "pillar" of nebulous light, near as well as away from Indridi. There are no reports of ectoplasm exuding from the orifices of his body.

These analyses show that physical mediums were far from being all shaped in the same mold. The frequency of their various physical phenomena differed widely, and some phenomena occurred with one medium and not with the others.

Reports about Indridi's mediumship were presented at the first two international conferences on psychical research in Copenhagen and Warsaw. For a thorough review of Indridi's mediumship see Haraldsson and Gissurason: Indridi Indridason. The Icelandic physical medium. White Crow Books, 2015.

The Extended Mind

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Abstract

I base my ideas on experiments on telephone telepathy, SMS and email telepathy, as well as the sense of being stared at, and some new experiments on joint attention. I will show how the sciences are being constricted by assumptions that have hardened into dogmas. Should science be a belief-system, or a realm of enquiry? In the sceptical spirit of true scientific enquiry, I turn the ten fundamental dogmas of science into questions, opening up startling new possibilities. For example, the “laws of nature” may be habits that change and evolve. The Gravitational Constant may not be constant. Minds may extend far beyond brains. The total amount of matter and energy may be increasing. Memories may not be stored as traces in our brains. I argue that science would be better off without its dogmas: freer, more interesting and more fun.

The Experimental Evidence for Parapsychological Phenomena: A Review of Metaanalyses

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Ostensible parapsychological (psi) phenomena can be researched through descriptive and experimental approaches. I will present an overview of some of the available meta-analyses (statistical analyses of accumulated studies on an area) for experimental paradigms in these areas: forced choice guessing, free response guessing (including ganzfeld studies), remote viewing, dream psi research, implicit anomalous cognition (including Bem-type experiments), presentiment, anomalous perturbation (micro-PK), and non-contact healing studies. These meta-analyses have consistently found significant results (of small effect size) and provide cumulative support for the reality of psi that cannot be easily explained away by the quality of the studies, fraud, selective reporting, experimental or analytical incompetence, or, more arguably, questionable research practices. The evidence for psi phenomena is comparable to that for accepted phenomena in some areas of psychology, although we remain far from having a satisfactory understanding.

“Not in Your Life-time”: The Ganzfeld Revelations

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The ganzfeld had a palatial beginning in the rooms of the Berliner Sloss and seems to be now meeting its end in dissolute psychology departments. Yet in the early 1970s it had been rebuilt and launched as the psi-ganzfeld and became the flagship of parapsychology from 1980s onwards. What was an almost unique in the history of psychological science, was the constructive collaboration of Honorton and Hyman to agree on methodological requirements for its future seaworthiness even if this entailed “back to the drawing-board”. However by the year 2000 this had given way to extremely polarised and heated debates over meta-analysis and what constitutes true replication. Current suggestions in the wake of revelations of QRPs in psychology, concern not so much a back to the drawing-board” but back to scratch. The power analysis of contemporary ganzfeld experiments that would now be required for a new series of registered meta-analyses gives now such a dismal picture that we can be certain that with the diminishing resources the resolution of the issue will (to quote Earl Warren) "not be in your lifetime". A more radical view will be presented here using what we know from previous ganzfeld methodology, the type of participants, and the characteristics of the experimenters who succeed, enables us to formulate a new recipe for success and perhaps some theories about how ganzfeld works – and the latter has priority.

Transitioning to Pragmatic Applications of Scientific Anomalies

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Institutionalized scientific resistance to novel ideas has been thoroughly discussed and documented. This has been most parsimoniously illustrated by Plank's infamous dictum that "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it." In more sociological terms, the untested "background assumptions" (Gouldner) of a culture change to more resonantly accommodate the new ideas.

Anecdotally, it appears as if a generational shift may be in progress, whereby the intractable knee jerk hostile reactions to their subject matter that so many in the SSE and PA have experienced are softening in the general culture. And while the academy may indeed remain the most conservative, lay persons and industry may have taken the lead in openness to innovative exploration.

Of course, it's possible that the academy may also finally be poised to shift by "advancing one funeral at a time" (Planck). Intellectual capital, though, is not just limited to abstract ideas, but also has practical applications. This can be illustrated in the area of anomalous healing.

In many in vivo and in vitro experiments over the course of 35 years, I have demonstrated robust and reliable data that demonstrates beyond reasonable doubt that "healing" can happen, that dose is a factor, that healing proceeds non-linearly, that it is not fundamentally "energy" but "information" that is at work, that it is not correlated to a particular state of mind but functions more as an autonomic response to the need of the healee, to name but a few findings. I'm also working on the non-psychological components of placebo explained as an actual resonant bond between physically separated groups.

And while the list of basic research questions regarding anomalous healing remains inexhaustible, my current research also includes the question of whether the healing effect can be "captured" and "reproduced" without the healer. In other words, can we store and independently deliver healing in a practical and scalable fashion? Selected current biological research on whether biological systems can recognize "stored" healing will be presented, along with work in physics and engineering designed to test whether "recordings" of healing potential can reproduce healing outcomes.

Is telepathy – if it exists – an electromagnetic phenomenon?

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Abstract:

Like other reputed parapsychological phenomena, telepathy has been rejected by most mainstream scientists, arguing, for example, that no credible mechanism for transmission of telepathic information is conceivable. Such arguments may be premature, however.

There are two major competing physical explanation models of telepathy: the quantum mechanical and the electromagnetic model.

Among parapsychologists, the quantum mechanical model is the favoured one. There is one particular phenomenon in quantum mechanics that has been ascribed a great potential to account for telepathy (as well as many other hypothetical parapsychological phenomena), namely entanglement, a relationship between two quantum object (for example, photons) that apparently makes them capable to affect each other immediately at unlimited distances. There are several problems with this explanation, however, the most serious one being that entanglement does not provide any useful mechanism for transmission of signals from one quantum object to another.

The electromagnetic explanation of telepathy – which for most people is the only possible explanation – has for a long time been rejected by parapsychologists as well as by critics, but for partly different reasons. One argument that has been put forward by both camps is that electromagnetic signals are too weak to be possible to be caught by the brain, particularly as the signals have to be able to penetrate the skull bone, which – probably wrongly – has been commonly supposed. In view of current knowledge, this argument is not tenable, however. It is well established, for example, that not only birds, but a large number of species, varying in size and living conditions, react to changes in the earth's electromagnetic field, the strength of which is extremely weak, (50 000 nT), approximately equal to the field strength of a bulb. Among many phenomena pointing to a very sensitive electromagnetic sense is the fact that sharks and similar fishes have developed an electromagnetic sense that helps them catch other fishes by picking up electromagnetic signals generated by their cells. Whether man also is equipped with an electromagnetic sense, and if this sense is sufficiently sensitive to pick up very weak signals, remains a controversial issue. But there are some suggestive evidence that man does have such a sense, for example the experimental finding that the sleep pattern apparently may be disturbed by mobile telephones.

Parapsychologists – but not the critics – have also another objection to the electromagnetic explanation of telepathy: it presupposes that telepathy is a distance-dependent phenomenon, which most contemporary parapsychologists deny. However, the empirical basis of the assumption that telepathy is independent of distance is meager, to say the least.

Previously suggested electromagnetic explanations of telepathy have been vague, due to the lack of concrete information about how an electromagnetic sense might work. The situation may now

have changed, however. In 2012 Shia suggested a model aimed to explain how telepathy (as well as similar parapsychological phenomena such as healing) might work. This explanation is based on cryptochrome, a light-sensitive protein that occurs in all tissues, but mainly in the eyes and the pineal glands, and is known to enter as the central component in a mechanism that regulates seasonal as well as day-and-night rhythms based on light. According to Shia, cryptochrome might also enter into a mechanism transmitting telepathic and other parapsychological signals, preferentially through the eyes.

An obvious test of the electromagnetic model of telepathy is to test the prediction that telepathy is distance-dependent. Ideally, if this model is correct, there should be a negative correlation between performance in a telepathy experiment and distance.

Another obvious prediction is that any telepathy experiment would fail if either the sender room or the receiver room would be electrically insulated by a Faraday cage – provided that telepathic signals are not mediated by long electromagnetic waves, which are not blocked by a Faraday cage.

Both these predictions could be tested by re-analyzing old ganzfeld data.

Panel Discussion on Parapsychology and Consciousness – status of the field

with Etzel Cardeña, Jan Dalkvist, Adrian Parker and Rupert Sheldrake

Questions that can be addressed and discussed: Is there any scientific support for parapsychological phenomena like telepathy and healing? Is there any support for such concepts as “the extended mind” (extended beyond the body)? If there is support, is it enough? On what criteria is that question to be answered? How come that some parapsychologists regard the support to be enough, while other evaluate there is need for more research? How would consciousness possibly relate to such phenomena? Is parapsychological research carried out with the same stringency as other scientific research? Criticism is a part of the process, but what is justified and pertinent and objective criticism? How come parapsychologists and critiques draw very different conclusions?

Intention and brain-to-brain communication with non-invasive techniques

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ABSTRACT

Brain-to-brain communication has increasingly become a topic of interest in neuroscience. Previous studies have shown synchronization of neural activity between pairs of participants when intentionality is involved, even at a distance. This study, funded by Bial Foundation, investigates how distant focused intention using a technique called Reiki, either alone or enhanced by neurofeedback, influences executive-function performance (attention, memory and problem solving). We also aim to determine whether or not there is any expansion of consciousness as a result of distant focused intention. Quantitative electroencephalography records, while a neurofeedback system attempts to enhance, the simultaneous brain activity of pairs engaged in Reiki. The intention sender is located 800 meters away from receivers and has no prior contact with them. Data analysis focuses on brain coherence between participants, sLORETA analysis on brain area activation and performance results in cognitive tests.

REG mind-matter interaction: novel data analyses and different operator intentions

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Studying the impact of conscious intention on random physical events is a research field with more than a 30-year history. One of the most rigorous methods is the use of true random event generators (REG) – electronic devices which, based on quantum events, provide a continuous, truly random stream of 0s and 1s to a computer. To date, most research has explored whether conscious intention influences the relative proportion of 0s and 1s in the number stream. The question if human mind is capable of altering the number stream in other ways, however, has to our knowledge not yet been tested. We conducted a pilot experiment to find out if such altering of the number stream is possible.

6 volunteers in 12 sessions participated in our experiment. The participants were instructed to influence the REG outcome in 5 different ways, and these 5 conditions were randomly permuted for each participant. The conditions were: (1) to increase the amount of ones; (2) to increase the amount of zeros; (3) to increase the amount of „111“ sequences; (4) to increase the regularity of alternation of 0s and 1s; and (5) „free ride“ – an unspecified change where participants could exert influence at their will, without any instruction. Before and after these 5 conditions, referential periods without any intentions were recorded. All single periods (the 5 conditions and 2 referential periods) lasted for 30 seconds each.

The resulting time series were evaluated for each condition separately according to the following 6 different measures: (1) the proportion of 1s; (2) the proportion of 0s; (3) the amount of „111“ sequences; (4) Shannon entropy; (5) clustering of digits; and (6) Lempel-Ziv complexity. The motivation behind the introduction of complexity measures for application on binary REG time series was related to conservation laws in physics: keeping fixed proportion of 1s may correspond to energy conservation, while altering their order in time series might be connected to much more subtle effect and be feasible without extra energy costs. Potential influence was evaluated in comparison to long term reference performance of the same REG instrument.

In all 30 cases (6 measures x 5 different intention conditions) REG features were significantly altered ($p < 10^{-30}$) in respect to the reference REG data. The basic effect that occurred under all 5 intention conditions was an increase of 1s, even in the case where the intention was to increase zeros. During all 5 intention conditions the measure of “111” sequences was increased and the last 3 measures estimating different types of order in binary time series were decreased. Although these global shifts might be partially caused by the global increase of 1s, during the intention for regularity (condition 4), the ratio of 0s and 1s remained the most proportional. Moreover, opposite to our expectation, the complexity in condition 4 was the highest from all 5 conditions. Marks of latency, accumulation, and persistence were observed during time progression with respect to the proportion of 1s.

Marie Ryd: Dowsing a psitrack

Quantifying the Mind's Perception of the Laws of Physics and the Cosmos, by Dowsing Abstract Geometry

Jeffrey S Keen www.jeffreykeen.co.uk

I wish to explain a technique I have developed for dowsing abstract geometry that has produced some ground-breaking and fundamental findings, demonstrating that the mind is very sensitive to both local and astronomical forces. The culmination of all this work leads to a remarkable demonstration that minds, as well as physical bodies, have the innate ability for instantaneous communication of information across the solar system.

Although any source of physical or abstract geometry can be used in this technique, experience has found that the most practical and accurate protocol is to use the simplest geometry – a dot. Although science usually avoids a singularity, quantified results have proved that using a dot is beneficial. Dowsing a dot produces a perceived horizontal subtle energy beam that has an outward flow towards the observer, and ends in a clockwise spiral. The length of this beam (L) is measured from the source dot to the central vertical axis of the spiral. There are 3 good reasons why this is a powerful technique for scientific research. L can be measured very accurately to within 2 mm; L is very sensitive to both local and astronomical physical forces such as gravity, spin, magnetism, tides, and light; and it enhances the detection and measurement of the properties of other subtle energies including abstract and physical geometric alignments. Proof of the scientific accuracy of this technique was obtained when I introduced 13 cynical Dowsing Research Group members to this technique. Without any practice, they individually dowsed the dot and measured L. This was repeated on 6 occasions over 2 days. A summary of the results will be presented, and they show an initial 13% variance. Repeating this group experiment 3 months later produced an interesting improvement in performance to a variance of 7%. Practice makes perfect! It took me about 3 years to attain an even greater accuracy to within 2 mm.

Although the above may be of general background interest, the most exciting aspects are the quantified results and graphs that have been obtained over the last eight years. For example, during the course of a day a sinusoidal curve is obtained with maxima at sunset and minima at sunrise, even if measurements are made in a darkened room on a cloudy day. At sunset, the peak starts as the sun touches the horizon. The maximum length (L) is when half of the sun is below the horizon. The peak ends just when the sun has fully set. The effect lasts about 5 minutes.

Full moon produces a lower gravitational force on Earth, as the sun and moon's gravity are pulling in opposite directions, whilst new moon produces a higher gravitational force, as the sun and moon's gravity are pulling in the same directions. This is reflected in lunar monthly variations whereby lower gravity results in longer lines whilst higher gravity results in shorter lines i.e. L reaches a well-defined peak at full moon and a minimum at new moon.

The mind detects changes in the Newtonian gravitational force, F_g , as the earth orbits the sun. Over the course a year a plot of L produces an equation $L=6E+105 * F_g^{-6}$ which has a high correlation coefficient $R^2 = 0.9745$. The power index is Feigenbaum's constant within 0.013% error. This is another example of the mind's ability to interact with gravity and produce a universal constant, suggesting that consciousness is intimately connected to the fabric of the universe and chaos theory.

Any three objects in alignment, be they 3 grains of sand, three trees, 3 coins, 3 stones, three abstract circles drawn on paper, or even three objects in the solar system all form a strong dowsable subtle energy beam that experimentally has been perceived to extend endlessly. In particular, this beam has been measured during eclipses of the sun and moon. The peak of L is about 9 minutes **before** the published time of an eclipse, i.e. the time it takes light to reach the earth. The same results are obtained if the eclipse is on the other side of the earth and is non-visible. To obtain greater accuracy of time differences, several measurements have been made involving outer planet conjunctions. For example, the predicted time of an Earth, Moon, and Saturn conjunction was 19:53 GMT on Nov 12th 2009. The peak of L was measured 1 hour 13 minutes **before** this predicted time, which is remarkably close to the time light took to reach Saturn on the day of the experiment. The data was analysed weeks after the event. This demonstrates that the mind can communicate not only faster than light, but instantaneously across the solar system, and the structure of the universe is such to enable this to happen. It also suggests that macro entanglement is possible.

Consciousness and the life force

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Three decades of research into consciousness-related anomalies at the Princeton Engineering Anomalies Research (PEAR) laboratory and elsewhere have indicated that these inexplicable phenomena may be associated with some fundamental process related to the nature of life. The empirical evidence cannot be accommodated within the prevailing laws of physics and is inconsistent with most of what is known in contemporary cognitive science, but it displays numerous correlations with biological processes associated with adaptation and evolution. This includes small effects in random processes that compound to significant shifts in their output distributions; gender disparities; and associations with physiological processes such as skin conductance, pupil dilation, and brain activity that appear prior to the presentation of stimuli. These anomalies comprise a domain where the objective physical world and the subjective experiential world overlap via the activity of consciousness, and they hint at an organizing role for consciousness that connects living systems with the primal Source from which all phenomena emanate.

What my tinnitus tries to tell me about the Milky Way

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A long-term sufferer from tinnitus describes unusually strong pulsed episodes experienced at nighttime between April-May and October. The author (a light sleeper) is awoken at least three times nightly by strong pulses resembling powerful tinnitus symptoms. The timing of these sequential events was recorded nightly over periods of 1-2 weeks at intervals during 2012–2016. The timing of successive pulses was similar on successive nights. However, the last two pulses nightly were shorter and more powerful, and occurred progressively earlier, with linear slopes (hour/day) close to 4 minutes earlier between successive nights. Such timing is apparently typical of a phenomenon following cosmic rather than terrestrial scheduling. Such 'cosmic' pulses did not occur between October and the following April-May. This is suggestive that the core of the Milky Way, which is only above the horizon from late spring to autumn, may be a possible source of the phenomenon. A historical context for this sensitivity is cited: the prediction of seasonal flooding in ancient Egypt where the Milky Way was referred to as 'The Celestial Nile' .

The hypothesis proposed here is that a unspecified form of celestial radiation is detected by my auditory sense as a form of tinnitus, possibly originating from the core of the Milky Way. Its central Black Hole has been specified as a powerful sources of gamma and X-ray radiation, and was postulated as the causative factor given the nightly regression in time mentioned. A hypothesis seeking to explain repeated pulses sensed at intervals of several hours could be that the source is only intermittently 'in line of sight', at times when gaps in the star and dust cover allow radiation to reach Earth.

A possible reason for the author's sensitivity was a successful cerebral operation in February 2010 to remove a benign growth, leaving a permanent aperture (a burr) in the skull adjacent to the right ear. Ancient literature suggests that this resembles a trepanned skull aperture, which was an operation applied in antiquity to priests and shamans, and believed then to increase sensitivity.

Science of Measuring Energy Fields

Revolutionary Instrument to reveal Energy Fields of Human and Nature

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Method of Electrophotonic imaging (EPI) - a digital stage of Kirlian effect, had strong development in the last years, mostly with the introduction of the Bio-Well instrument (www.bio-well.com) and Internet-based processing of information. More than 2000 professionals benefit from using EPI instruments worldwide. The main advantages are:

Fast and non-invasive measurements; may be used in any age with any types of diseases unlimited amount of time. Measurement is taken from the fingers, procedure is simple and takes less than two minutes.

Information on energy state of the most of organs and systems of the body – holistic view of the organism. Information on psycho-emotional condition of a person – evaluation of emotional pressure and left-right balance of the brain.

Fast and simple monitoring of the effect of any treatment and interventions, would it be allopathic or homeopathic medications, physical or psychological loading, etc. A lot of data on transformation of Energy Field under the influence of meditation, healing, and different energy modalities.

Combination of Western and Oriental approaches to analyzing information.

Presentation of information in different forms: pictures and diagrams, as well as many independent parameters. Convenient tool for scientific research. Storage of information in the cloud database with possibility to access information from any available computer.

The Bio-Well device with a specially designed sensor called the “Sputnik antenna” is used to monitor the Energy of the Environment in a room that enables you to see how it varies when people meditate, pray or listen to a presentation. A lot of data was collected during sessions of collective meditation led by Dr. Eric Pearl, Dr. Joe Dispenza, Dr. Philippi and many others.

Together with Bio-Well device we are offering special device for influencing the energy state of a person by complex influence with an individual music program and ultra-high frequency (UHF) waves of low intensity. In the Bio-Well program information taken from fingers is transformed into frequency and music. This music together with a frequency is applied to special earphones, which results in 10 minutes guided meditation. This helps decrease stress and develop a better lifestyle.

Data, collected by many researchers for the last 10 years suggest, that Electrophotonic imaging technique offers convenient practical tool for the exploration of consciousness and its influence to the environment.

Endogenous electrical pulses from egg membranes: a quantum phenomenon?

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Electrical activity of unfertilized ovarian (Gallus) eggs with periodic and regular behaviour have been discovered and studied in detail.

Regular electrical pulses, often in spike-form, in the interval pA to nA have been recorded, lasting from hours up to several months have been observed and studied. A typical period of these been in the range 20-80 s , with the minimum approx 2s and maximum 7 min.

A systematic exclusion of external influences by EM-fields, temperature etc has been performed. This together with in-depth studies of the system eggshell/eggmembrane as well of the influence of the inner part, egg yolk/glair, clearly showed that the electrical activity was self-generated And dependent only on the shell/membrane system and independent of the inner part.

Au-electrodes, diameter 5 mm were applied to the outer shell via EKG-paste and connected to a low-noise, battery driven amplifier with high precision. So called global measurement with 5 channels demonstrated that the pulses were synchronized and in phase over the area of the shell. The measurements were carried out in a three-layer Faraday cage, consisting of Al + Mu-metal + Cu, box in box, each with 2 mm thickness. The temperature in the measurement chamber was recorded with an accuracy of 0,001 C. No significant influence by the temperature was seen in the interval 5C to 60C, while most studies were done in room temperature.

A remarkable feature of the regular spike-pulses is the extremely fast rise-time down to 4 micros with a pulse-width of approx 10 micros. Furthermore, these are often bipolar and with an almost constant amplitude, up to 6 months. Based on the experimental facts, simple calculation implies that a rather small number of electrones participates in such a pulse, in the order of 10.000-100.000 or possibly even fewer at times. This could hint that quantum events might be involved.

The need of libraries in parapsychology

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To promote research in parapsychology, literature in this field must be saved, collected and made available electronically. Many collections, often being unique, are dispersed when the owner dies and there is no-one knowing of available and interested libraries. Therefore, libraries for the literature in parapsychology are necessary, and also made available electronically, including both books and scientific journals.

Direct Mind2Mind Communication: its Basis in Bio-regulation

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Direct mind-to-mind communication is a phenomenon named Seventh Sense Perception. [1] Such communication is of ideas, and often considered a kind of quantum phenomenon, but temperatures around 300°C are known to preclude sufficient stable quantum coherence being available to support such phenomena. The talk will show how laws of complexity organize biological regulation to provide a comprehensive solution to the problem, [2] with powerful implications for cognitive science. [3] Complexity offers revolutionary new perspectives on biology. Its fundamental finding is that organism responses to fixed stimuli are not fixed. Responses form $(1/f)$ distributions [4], meaning that loci of organism control are at instability i.e. without quantum fields to stabilize them. [3] Complexity proposes that self-organized criticality [5] maintains loci of control at instability. These radical new, universal facts about organisms may be simply understood: criticality optimizes regulation, function and behaviour in challenging environments [3,6]; it thus optimizes health. [6] Now consider its implications for mind: Mind (if it exists) must function at the overall locus of organism control, *which must be an instability*. Note that this simple consequence of complexity refutes all arguments against Mind as a scientifically valid concept, posited since Descartes proposed that the world is a large mechanism, leading to the idea that mind is merely an impotent ghost in a large machine. Complexity implies that: Mind exists under physical conditions where concepts of mechanism and machine break down. [3] Understanding how organisms support conscious awareness and experience is gained by considering the kind of information that exists under the physical condition of instability. The talk will show that: such information is *not* digital information; that it has a double aspect structure, $\leq \mathbf{O}$, as posited by Chalmers [7]; where \leq is a *highly correlated* mixture of quantum vectors; while \mathbf{O} is an *internal* information loop with feedback unity. [2,3] The internal feedback loop explains self-awareness [2], the internal sense of passing of time [3,8], reduction of wave packets by consciousness [3]; and resolves Schrödinger's Cat Paradox. [3] Instability being at criticality carries ultra high internal critical point coherence. Its excitations are not quantum states, but critical point excitations, of potentially unlimited complexity [3] with stable internal quantum coherence carrying large amounts of information, encoded using catastrophes. [9] Information can now be directly transmitted from mind to mind, when the minds have enough in common, i.e. are well correlated. Thus is born a rigorous theory of direct mind2mind communication of ideas as expounded by Sheldrake [1]: Seventh Sense Communication with its myriad of well defined, verified examples, finally finds its theoretical basis: bio-regulation at instability can directly encode ideas. Examples will demonstrate that the encoding is 400+ million years old.

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Consciousness and Time

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One of the greatest challenges with regard to our understanding of how neural systems and processes relate to consciousness, concerns the interaction between different temporal and spatial scales. Even though we have a fairly good understanding of how action potentials can be generated by ion currents, and some general ideas on how action potentials may be related to cortical neurodynamics, we still have little knowledge about any information transfer between the different levels.

In this presentation, I will focus on the various temporal scales related to mental processes, as they are associated with different biological structures and processes, which have evolved through millions of years. Since organisms have to survive in a complex and changing environment, they have to respond and adapt to environmental events and changes at several time scales. The interaction with the environment depends on the present state of the organism, as well as on previous experiences stored in its molecular and cellular structures. In higher organisms, the capacity to anticipate and predict becomes increasingly important, involving complex neural structures and processes.

The evolution of a nervous system is a major transition in biological evolution and allows for an increasing capacity for information storage and processing, increasing chances of survival. Such neural knowledge processing, cognition, shows the same principal features as non-neural adaptive processes. Similarly, consciousness might appear, to different degrees, at different stages in evolution. Both cognition and consciousness depends critically on the organization and complexity of the organism.

In this presentation, I will briefly discuss general principles for evolution of complexity, focussing on the evolution of the nervous system, which provides organisms with ever increasing capacity for complex behaviour, cognition and consciousness. I will also discuss some computational approaches, as tools for understanding relations between structure, dynamics and function of the nervous system. Finally, I will discuss conscious experience of time and timelessness, with specific reference to the Bohmian theory of wholeness and implicate order.

Panel discussion on different interpretations on David Bohm's ideas of quantum physics and consciousness

With Hans Liljenström, Paavo Pylkkänen and Stuart Hameroff, and Georg Wikman

The phylogenetic origin of mind

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The belief in the accepted equivalence of mental events with brain events has hindered independent investigations on the phylogenetic origin of human mind. We have approached this problem by using as criteria identifying the presence of elementary mental features in phylogenetic organisms the corresponding biological structures that support their presence in man. Accordingly, the association of mind with brain indicates the presence of less developed minds in all vertebrate and invertebrate species, and the association of mental images (*qualia*) with the activation of sensory receptors further extends the presence of still more primitive minds in all multicellular and unicellular organisms. Furthermore, the emergence of mind in primitive organisms from 'inanimate matter' appeared comparable to the emergence of the properties of water from the different properties of the constituent atoms. Since the transition merely reflects the novel dynamic configuration of the atomic components rather than a difference in nature, and since analogous emergencies also regards sub-atomic and sub-nuclear components, a primordial mind may be thought to stem from the elementary particles that are believed to be the ultimate components of the universe.

Since *qualia* request the interaction of a stimulus upon a receptor, comparable interactions among 'inanimate' bodies may also be thought to generate mental images of a more primordial nature. These interactions often produced mutual changes in the interacting partners, notably when they joined and built a more complex entity by partial sharing their energy/informational fields. A clarifying example is provided by the aromatic carbon compounds in which π electrons distributed over the entire ring integrate and maintain the components into a novel whole. Accordingly, in a system of systems like man even the topmost level is sharing part of the energy/information contributed by constituent layers including the most basic layer. In humans (and in living organisms) the energy/information circulating throughout the body may be regarded as his mind involved in never ending dynamics (1-3).

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Can consciousness influence our epigenetics and can epigenetics influence our consciousness?

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In our body there are 100 trillion (10^{12}) cells each of which containing circa 22 000 genes.

Epigenetics is a mechanism for regulating gene activity independent of DNA sequence that determines which genes are turned on or off: in a particular cell type, in a different disease states or in response to a physiological or even psychological stimulus.

There is a microbiota-gut-brain axis communication in health and disease. (Under healthy conditions, the predominance of symbiotic bacteria, an intact intestinal barrier, a healthy innate immunity controlling pathobiont overgrowth inside the intestinal barrier).

The molecules that constitute epigenomes have no resemblance of DNA. While DNA is a double spiral, similar to a twisted rope ladder, the epigenome is a system of chemical markers that sits on the DNA. What is its purpose? In the same manner that a conductor leads an orchestra, the epigenome decides how the genetic information of DNA shall be expressed. The molecule markers either engage or disengage the genes depending upon the cell's needs and environmental factors, such as diet, stress and poisons. Of late, the discoveries surrounding the epigenome have caused a revolution in the field of biology now being able to prove a connection between the epigenome and certain illnesses, including aging.

Negative epigenetic changes can increase the risk of illness while positive epigenetic changes minimise the risk for illness. From different methyl-donators, such as methionine, folic acid, choline, betaine and vitamin B2, B6 and B12 SAM is formed as methylated DNA and histones. When the fiber breaks down in the large intestine with the help of probiotic bacteria, short chain fatty acid is the product, especially butyric acid that has the important task of acetylation of histones. A line of polyphenol/flavonoids/iridiods from berries, vegetables, green tea and dark chocolate with a high cocoa content may have strong epigenetic impact. Amongst these there are certain substances noticeable, genistein from soya, curcumin from turmeric, resveratrol from red wine and lingon berry, isothiocyanates from the cabbage family, allyl sulfides from onions, epigallocatechin gallate (EGCG) from green tea and a line of polyphenol/flavonoids/iridiods from lingon, blueberries and Hippophae rhamnoides to name but a few. All of these substances can methylate DNA and histones and acethylate histones. Normally it requires a great amount. Through the named substances it is also possible to get the positive effects of non-coded RNA (ncRNA; miRNA). Physical activity, including working out, and how we feel, can also give you positive epigenetic benefits.

New mechanisms found in epigenetics open new possibilities for consciousness, whatever it is, to interact with the physical reality.

A Mind-Object Identity Theory: is consciousness an object?

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If conscious experience is real, it must be physical. Conversely, every physical entity is spatiotemporally located and causally relevant. What and where is experience then? Against a widespread tradition that conscious experience – whatever it is – is a property instantiated by biological processes going on inside the body – usually by neural processes in the brain – here, a different hypothesis is put forward – one’s conscious experience of an object is the object one experiences. Such a hypothesis is a physicalist mind-object identity theory. It suggests that conscious experience is identical to a physical phenomenon. It is also an ultra-realist view because it implicates that whenever we experience something, a corresponding external object must exist. In short, the hypothesis is that, when I perceive a yellow banana, the thing that is one and the same with my consciousness of the yellow banana is the very yellow banana one can grab and eat, rather than the neural processes triggered by the yellow banana – experience is thus physical but NOT necessarily neural. This hypothesis is different from enactivism, the extended mind, active externalism, and neural monism. It is an object view of consciousness.

Neural activity is not dismissed though. Its suggested role is causal rather than constitutive. One’s body – sensorimotor apparatus and nervous system together – plays a contingent causal role as, say, a dam plays a contingent causal role in the existence of a lake. The dam, though, is not the lake. The dam is made of concrete and bricks while the lake is made of water. Like the dam brings the lake into existence, so the body brings the object into existence – such an object is identical with one’s experience of the object.

The object one perceives is not an absolute object. It is rather an actual object whose existence is causally possible thanks to the presence of one’s body. Thus, different subjects, who have different bodies, will be identical with different actual objects. Such objects will be external to their bodies.

The external actual object is not less physical than the neural activity inside one’s brain. Such a hypothesis must face the traditional cases in which a mismatch between experience and the world seems to occur – e.g., hallucinations, illusions, dreams, misperception, afterimages, synesthesia, and so forth. However, such a series of obstacles is of empirical nature and might be debunked once the actual evidence is considered. In this spirit, I will tackle a selection of cases such as direct brain stimulation, afterimages, Charles Bonnet’s syndrome and phantom limbs.

Conscious Spacetime. Experiences localised in spacetime and a mathematical conjecture towards a proof of conscious experiences existing beyond brain.

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That brain could “produce” consciousness is a never proven belief. Tononi’s IIT besides five “self-evident” axioms, uses at least two assumptions, which are neither self-evident nor necessary. Tononi and Koch (2014) states; “ I am seeing, hearing feeling something *here*, inside my own head.” This is actually refuted by data, as *sensory experiences* are never localized in the brain/head but in the body or the surroundings.

But what about *mental experiences* such as memories, feelings and thoughts e.g. about future? They are not in space outside brain now, so must be in the brain? No. Physics shows that spacetime is ontologically (at least) four-dimensional, that is all that has happened and all that will happen in time exist all at once, but outside the now. So it is argued that memories, thoughts and mental experiences are localized in spacetime outside the now and thus outside 3D brain and that conscious experiences extend in time as in space.

Tononi and Koch further states; “Every experience will have associated NCC “ (neural correlate of consciousness). This is a plausible hypothesis but not self-evident and ought to be taken as a further axiom A1.

Logically we have the possibility of two different relations between NCC and conscious experiences = c.e.

and thus two different disjoint subsets of the set of all c.e. $\mathcal{C}. \mathcal{E}. = \{ " c.e.; c.e. \$ \}$

$M1 = \{ c.e. \in \mathcal{C}. \mathcal{E}. ; c.e. \text{ has NCC} \}$

$M2 = \{ c.e. \in \mathcal{C}. \mathcal{E}. ; c.e. \text{ has no NCC} \}$ (and thus fulfil even the stronger claim not being produced by the brain)

$M1 \cup M2 = \mathcal{C}. \mathcal{E}. \quad M1 \cap M2 = \emptyset$

So we can have an alternative axiom A2 to A1. Thus

A1. “Every experience will have associated NCC”. $M1 = \{ " c.e.; c.e. \$ \}$ and thus $M2 = \emptyset$

A2: “There are experiences without associated NCC”. $M1 \neq \{ " c.e.; c.e. \$ \}$ and $M2 \neq \emptyset$

As there is no known explanation of *how* brain can “produce” experiences it is legitimate to take out-of-body experiences at face value and a tentative support that an OBE is not produced by brain.

Near-death-experiences where people see past, present and future events at once can be interpreted as an experience of the 4D spacetime. When a person also “moves” to different events of his life, this can be interpreted as existence of an extra time dimension for moving in 4D and the experience can be interpreted as a 5D experience.

My conjecture is that a 4D experiential structure (e.g. brain in 4D spacetime) in no sense can “create”, “produce”, “emerge” etc. a 5D experiential structure and that this could be possible to prove mathematically-logically: $\forall \mathcal{M} \subseteq \mathcal{S}_N = \{\forall (x_1, x_2, \dots, x_N)\} \nexists \mathcal{E}\mathcal{S}\mathcal{F}_N; \mathcal{E}\mathcal{S}\mathcal{F}_N\{\mathcal{M}\} \notin \mathcal{S}_N$ The crucial point yet to develop is a rigorous characterisation of $\mathcal{E}\mathcal{S}\mathcal{F}$ *experientialstructure function* which intuitively is expressing possible transformations on experiential structures.

Thus existence of ≥ 5 D experiences and a mathematical proof of the conjecture would constitute a proof that there are experiences not created by 4D brain that is $M_2 \neq \emptyset$.

Brain metabolic DNA

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We investigated brain metabolic DNA (BMD) in adult rats receiving [³H]thymidine and exposed to a variety of experimental conditions since DNA synthesis had been shown to increase by cell activity in different kinds of cell cultures (1) and we wished to examine the effect of brain activity on BMD. Data indicated that the intense BMD turnover was not due to DNA repair or cell proliferation but depended on brain activity. Indeed, BMD markedly decreased after electroconvulsive treatment and after learning an appetitive task or a spatial habituation task but markedly increased after learning a passive avoidance task or a two-way active avoidance task. Comparable effects were reported by other laboratories (2,3). In addition, BMD underwent a marked and selective loss in rats failing to learn the active avoidance task and allowed a post-trial sleep; it was strongly enhanced by the inactivation of the brain noradrenergic bundle and it was modulated by circadian oscillations, the acrophase occurring in the rat waking period. The circadian profile became sharper in rats exposed to an enriched environment but completely disappeared in rats exposed to an impoverished environment. Interestingly, the content of brain DNA also displayed a circadian rhythm whose acrophase also occurred in the waking period but with an hour delay from the BMD acrophase. The BMD features also included its presence in cytoplasmic particulates and its wide distribution among highly repetitive, moderately repetitive and non repetitive DNA fractions. The data demonstrate that BMD is directly involved in memory acquisition and processing and suggest that it may participate to a neoLamarckian mechanism guiding biological evolution (4).

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Small Bugaika: Enigma of Vanished Village

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This very interesting and enigmatic story began many years ago, in the end of 1940s. Firstly I`ve knew about it from the letter of my old time friend Mikhail Pikalov, the former teacher and director of rural school. After graduating Pedagogical institute in Sumy, Ukraine he came with his wife Lubov to the village Andriivka (and later went to Anastasiivka) in Romny district of Sumy region to teach the physics in school.

In both these village people told him a strange and in a some measure frightful story about events took place near modern village Anastasiivka in that time. Such events happened mainly in house of peasant Mefodii who lived with his wife and three daughters in small village Mala (Small) Bugaika. In the opinion of the narrators, the family of Mefodii became a victim of the crafty designs of devil. Mikhail invited me to visit this region and promised to find out some persons who could give me more adequate information.

Next summer I made a three-day voyage through places described by Mikhail.

Fist village was Kholodnyk, a half-emptied village (see the map). I`ve met with Mykola Olitskii, old man (he was born in 1919). M. Olitskii told me about one incident which took place in the house of Mefodii when two official persons have visited it. They had rifles. A word should be said that voice(s) of "devil" sounded from the attic of house and when in a room was darkness. So two "brave men" went up by ladder to attic and set down on the horizontal part of the smokestack. Having settled there and obtained a reliable and safe base they cried down to Mefodii "Blow out the light!" (In those days peasants use to light indoor the candles or kerosene lamp). In a few heartbeats they obtained strong strike from below and (having tossed away their rifles), tumbled downstairs and run off...

In village Andriivka other persons told me that these phenomena were connected with one of the daughters of Mefodii named Ganna (in that time about 10 years old). For example, Mefodii noticed the knocks sounded just above Ganna`s bed. When he asked her to exchange beds with sister Ulyana and they did so the knocks recommenced exactly above Ganna`s slipping place.

I've met Ganna three times during my expeditions. She said nothing about those events. The only informative phrases were: "People said there were lights on the surface of soil as the flames of candles," and "Knocks were as spoons rattled in a tureen"...

Frightened by what was going on, Mefodii and his family decided to leave the village and go away to Altay. In a few months all people of Mala Bugaika left this place also. The house was sold to make logs for the fire. Other houses disappeared also. Before the 2nd Great Patriotic War the village Mala Bugaika vanished totally.

After the war there have appeared agricultural fields. But enigmatic events continued. Very mysterious story was told me Mykola Katrych, the former tractor-driver which was a teenager of 15-16th years old at that time. One day he harrowed this place. Night was falling. Having heard a lot about mysterious events of the field he became aware of anxiety. All at once the tractor was conked out – water in radiator began to boil. Mykola turned off ignition, took a bucket and went to creek in nearest ravine. When he came back onto the field he saw the tractor was in motion! Having caught up and stopped the machine, he poured water into radiator and continued his work. After a time he was at the place where "the late" village was situated. Suddenly tractor stopped again. All efforts to bring it into action were unsuccessful. It was impossible to leave the machine unattended and go away to home due to an attack of possible prowlers. So, he began to demount all possible details and put them into the bucket.

Suddenly the boy listened a whistle "Few, few!" He tipped his head and saw ... a tall (approx. 15 m) pile as a girl in bridal veil at a distance of 20-30 meters. As a symbol... (of what?) But the situation called for to continue the work. And in spite of the fear he continued to fulfil his duties...

To my mind, we have dealt with some unusual geological processes at shallow depth. I am far from geology and geophysics personally, and the sum of all my efforts to obtain the qualified consultations culminated in failure.

And the hope springs eternal. I continue my quests.

“Quantum aspects and detection of geophysical anomalies”

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Hippocrates, the father of Medicine, in his work “Concerning Nutrition”, mentions that the *geographic location* and *ground typology* are equally important health factors as nutrition is.

Earth radiation anomalies are related to various phenomena, such as the piezoelectric phenomena, radioactive soils, geochemical gases, seismic faults, gravity anomalies, electrokinetic phenomena of subterranean water flow, spinning electric fields, ion flow, conductivity discontinuities, non dipolar magnetic fields, geoplasma and geoneutrons. Specific geological materials can also alter and/or augment these phenomena.

This paper considers physical aspects of a Field Gyroscope (FG) Phenomenon, associated with geophysical anomalies and developed by them stresses.

The FG is a result of superposition of two orthogonal alternating electric vectors, Parent Vectors, shifted in a phase. The said phase shift originates as a result of diffraction of the original fields on electro-physical heterogeneities like geological faults, subterranean water flow and so on. The driving electromagnetic fields originate from the Solar Wind charged particles. They experience a bend in their trajectories due to the magnetic Van Allen belts and thus produce electromagnetic radiation. This radiation is extracted by the natural Earth-Ionosphere Cavity Resonator and it is superimposed on Earth's heterogeneities.

The originated FG is a quantum entity. Its orbit is organized in a discrete way, like the quantum numbers. The calculations show that the FG has non-linear properties. It has the ability to produce a mechanical torque, which can have an effect on human health.

The instrument for studying FG is based on the development of an instrument called SEVA, Spinning Electric Vector Analyzer. It is based on analyses of two parent vectors and the following processing of their related signals. The instrument has showed its ability repeatedly to detect geophysical anomalies.

The human body, via different parameters, can interact with these phenomena, due to the existence of magnetite, iron, water and also its own electromagnetic fields. Research has shown that long term exposure to stress points on ground can have diverse negative effects especially on the brain activity and the immune system. Various similar effects have been noted on flora and fauna. On the other hand, short term exposure can activate healing mechanisms under circumstances. We need to find out if the anomalies have an effect on humans, via measurements of specific biologic parameters on location.

Delirium – our experience in clinical picture and EEG features.

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The word delirium is derived from Latin, meaning “off the track insanity.” This syndrome was reported during the time of Hippocrates, and in 1813, Sutton described delirium tremens. Delirium is not a disease but a syndrome with multiple causes that result in a similar constellation of symptoms. It is defined as a transient, usually reversible cause of cerebral dysfunction and is manifested clinically by a wide range of neurologic-psychiatric abnormalities. Delirium results from a wide variety of structural or physiologic insults. Precipitating factors for delirium include use of narcotics, severe acute illness, urinary tract infection, hyponatremia, shock, anaemia, postoperative pain, sepsis, pneumonia, substance intoxication or hard drugs sudden abstinence (alcohol, heroin, cannabis, LSD), medications (anticholinergics drugs, sedative hypnotics, histamine receptor type 2 blockers (cimetidine), corticosteroids, centrally acting antihypertensive agents (methyldopa, reserpine), anti-parkinson drugs (levodopa), and some drugs abrupt withdrawal (eg. opioids, or benzodiazepines).

We analysed clinic picture and power spectral analysis (pEEG) features in typical delirium manifesting series of Intensive Care Department of Anaesthesiology and ICU. Every patient was continually observed by the nurse as the sitter managing a specific medicate and medicare. Time-domain recordings of the EEG will deliver an enormous amount of data and requires additional trained personal for continuous EEG signal analysis. In order to decrease the amount of data, computer-processed EEG analysis such as pEEG has been employed for a more practical approach in ICU. EEG signal analysis – pEEG shows specific measures relating to the basic brain morphologic mechanism leading to a specific encephalopathy leading either from comatous stage out or to the lethal end. EEG oscillations are the speech, even the language of the brain that needs to be understood and interpreted.

The dates of the clinic pictures were worked by our experienced neurologist. As the basic ancillary investigation were used pEEG There were different mechanisms (brain swelling, infection, generalised epileptic discharges, intoxication) leading to qualitative consciousness disorders. As abasic psychopathology mechanisms we considered dispersion of attention leading to confusion.

This work was supported by project **Consciousness and its changes during general anaesthesia in thoracic surgery. APVV 0223/12**. Basic research. Slovak Research and Development Agency.

Pilot Studies of Physiological Connectedness Among Twins in Relation to Attachment

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Parapsychological research into distant interactions between individuals seems to indicate that the bond between sender and receiver is important. The present study was designed to investigate the ostensible relationship between telepathy and attachment between twins. By applying the concept of attachment from developmental psychology, this becomes the second in our series of studies in parapsychology to explore the degree of attachment between twins as a potential dependent variable relating to their apparent telepathic connection. At the current stage of evaluating a new methodology, we report the design and findings of this exploratory study. From an initial pool of forty pairs of twins, six pairs of identical and one pair of non-identical twins were selected on the basis of their responses to the *Exceptional Experiences Questionnaire* and on the availability of both twins to take part in the study. The test procedure required each of them to alternate in the role of sender in which they were exposed to a shock or surprise stimuli and in the role of receiver in which they were physiologically monitored for their electrodermal responses (EDR). Senders were presented with altogether five stimuli, one stimulus during each of the five trials per twin run. For each trial, the stimulus was presented during a 30 second period randomly chosen from eight possible such epochs within a four-minute trial. With a further 30 seconds added to establish baselines before and after each trial, this meant each trial would last five minutes. Graphs from 53 of the useable trials belonging to 7 pairs of twins were analyzed by the lead researcher (GB), who was blind to the time epochs in which the stimuli had been presented by the researcher working with the senders (AP). The task for the lead researcher was to identify a peak of the graph in the receiver's reaction that might approximately correspond to the midpoint in the period that the stimulus had been presented to the sender. In 12 trials out of 53, these identifications corresponded to the actual exposure period for the shock or surprise stimulus – constituting so-called “hits”, compared to the MCE = 6.625 and was significant, $p = .043$ (one-tailed). Three out of these twelve correct placements were contributed by just one of the twins. The attachment data that twins contributed via the EEQ questionnaire indicated that all the twins in the current study seemed to experience similar high levels of attachment. This consistency in strong and close relationships meant of course there was a lack of variance as concerns the hypothesis that attachment would predict the scores. The results of the *Experiences in Close Relationships – Revised* (ECR) indicated that all the twins had very low scores on attachment-related anxiety and avoidance in their relationships. The profiles of twins having many hits in the telepathy experiment as regards any aspects of attachment were not significantly different from those of the others. The data provides justification for a major study using this methodology with selected pairs of twins. Some major improvements in the design were suggested. The synchronous monitoring of the electrodermal activity for the sender will later be carried out, giving possibilities to give a precise record of the timing and the effect of the shock stimuli.

Individual differences and psi performance in forced-choice precognition experiments: A meta-analysis (1935-2015).

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In 1991, statistician Jessica Utts made the statement that “[a] promising direction for future process-oriented research [in parapsychology] is to examine the causes of individual differences in psychic functioning” (p. 377). It seems that such an approach is not only fruitful but also necessary, given that the evidence for psi (a general term used to describe anomalous communication) is often inconsistent and elusive. If psi phenomena are to be taken seriously by the scientific community, its nature needs to be observable under pre-specified conditions (Hyman, 2010). To understand what these conditions might be, it is informative to compare and analyse past research to find out which individual difference measures are most predictive of psi performance. This meta-analysis therefore seeks to synthesise such research, in an attempt to identify the most promising individual difference variables with the largest overall effect sizes. It is hoped that identifying these correlates will provide a better roadmap for future psi researchers.

This meta-analysis focuses specifically on forced-choice experiments that have tested for precognition (i.e. the foreknowledge of an event without any known explanation). Forced-choice experiments give participants several options to choose from for their response, whereas free-choice experiments allow participants to make an unrestricted response. As free-choice experiments – such as the Ganzfeld – have received a lot of attention in the literature (see Bem & Honorton, 1994; Milton & Wiseman, 1999), this meta-analysis focuses exclusively on forced-choice experiments. It also looks at precognition rather than telepathy (anomalous communication between people) or clairvoyance (perceiving something without using normal sensory modalities), as precognition experiments are less susceptible to sensory leakage (Steinkamp, 2005). For example, in telepathy experiments, participants may potentially make decisions based off experimenter’ facial cues, but this is not possible in precognition experiments where the target cannot be known (even by the experimenter) until after the participant has already made their choice.

The meta-analysis will analyse all of the different individual difference factors that have been correlated with performance on precognitive tasks in experimental settings. Some of these individual differences include extraversion, creativity, neuroticism, belief in psi, schizotypy, and creativity. Moderator analyses will also be conducted to determine whether performance on these tasks are moderated by factors such as the quality of study, group/individual testing, selected/unselected participants, and those who practice a mental discipline (e.g. yoga or meditation).

Does mind influences matter? A Replication of the Correlation Matrix Method

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Summary

Can mind interfere with matter with no intermediation but its own influence?

The purpose of this study is to replicate a new paradigm that claims to be an answer to mind matter interaction and to the replication problem in parapsychology. Acknowledging that repeatability of experiments is crucial for scientific acceptability this study is of crucial importance to the field of Parapsychology.

The study focuses on the assumption that Psychokinesis (PK) should be explained as a generalised non-local correlation between physical and mental systems. The experiment is not a standard PK experiment as the mean shift of the RNG is not being measured. Rather physical variables are compared with psychological variables and correlated with each others in a 2025 cell matrix table with a control setting where the system runs with no participants.

It is predicted that the number of significant correlations occurring between participants and RNG are above chance.

The correlation matrix experiment was theorised by Walter von Lucadou (1987) and followed by von Lucadou, Walach and Romer (2007).

The experiment examines whether human intention operates on a random number generator (RNG). The aim of the original experiment was to compare the number of significant correlations between physical variables (RNG behaviour) and psychological variables (participant key-pressing behaviour) in a matrix with the number of correlations appearing in a control matrix.

The experiment set-up intended to capture generalised non-local correlations and has been reported in previous studies to be replicable. The same psychological and physical variables used in previous studies were employed in the present study. Participants try to mentally influence a fractal appearing on the computer screen to “shrink”, “grow” or “leave” it stable according to the instructions. After each session the computer run a new session without participants to simulate the behaviour of the system during the experiment. The psychological variables from the participant are used together in the empty run to construct the control session.

Humans as Sensor for Physical Experiments with Subtle Matter

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A human is a biological sensor which can detect structures involving subtle matter. About 5% of all people have this extended perception ability.

In order to confirm whether or how real masses are associated with subtle matter, experiments were performed with masses of different form, size and material. The outermost observed structures were spherical zones (orbitals) with radii of several meters. Inside several groups with four differentiable elements (zones) were found.

Experimental experience:

1. The outer orbital:

a) each real body has an orbital involved with subtle matter around it, b) the included volume is proportional to the real mass of the body and c) the ratio of masses of real and subtle matter seems to be constant.

Bodies interact with each other when their orbitals are in contact. Their orbitals merge. As a consequence, resonant structures can be observed.

2. Groups and zones:

The number of groups and the size of the zones depend on external excitation (e.g. EM-waves). Normally at a small natural excitation (cosmic, terrestrial) there is one group with four zones. However after begin of an artificial excitation these four zones expand to a maximum size and then another group with likewise four zones emerges. This procedure continues. During such excitation up to seven groups were observed.

With some objects (plant stalk, battery) the excitation can be polarized. As a result, the overlay of natural and artificial stimulation can lead to an increase as well as a decrease of the structures - depending on the alignment of the object.

The time dependent behavior of increase or decrease is similar to that of a RC-low-pass filter. (The output signal follows the input signal with time delay (with RC-time from seconds up to several minutes).

The structures made of groups and zones are volatile. Acoustic impacts (hand clapping) can let them collapse immediately. After such „reset“, the building of the structures starts ab initio.

3. Influence of noble gases:

Experiments with bodies in a vacuum chamber show that noble gases are necessary for developing of the structures with groups and zones. Their size depends on the concentration of noble gases (argon, helium, neon, krypton, xenon) in the environment. Normal air has 0.9% argon.

The process of thought forming and the mechanic of intuition.

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Abstract:

There are several theories attempting to explain the formation of thoughts. They address mainly the physical parts of a human being, i.e brain, nervous system, cells and the electromagnetic fields surrounding them. The Authors propose a brand new approach about conscious and unconscious thoughts formation process, that comprehend both our physical and non physical bodies, their fields (matrixes) and forming principles.

This process was derived combining a congruent number of channelled information. Its consistency and validity was proven through several experimental sessions with groups. The concept was proven in "Group Thought Shifting" experiments: between 80% and 90% of the people responded according to the prediction. A 15' demonstration can be replicated before the presentation.

The dissertation is based upon the existence of both physical and non physical bodies and their related fields, constituting the human being. Anatomy, features and functions of these constituents are briefly described in the article, limited to the scope of the thought formation. As much as electromagnetic fields in Nature aggregate charged particles, a thought forming principle exists that originates a matrix or "thought field", attracting and assembling "memory particles" with specific features and order. The concept of the field - and formerly of forming principle - is of paramount importance in thought formation as much as it is in the formation of the physical realms.

The base of the thought is a field. The memories aggregate around this field to form a thought. Before that, the field itself is generated by a thought forming principle.

Main purpose of this study is illustrating how this field interacts with physical and non-physical bodies and how they interact with each other in the thought formation process, through a number of specific, sequential and predefined phases.

The understanding of human being is profoundly entangled with his non physical bodies.

Accounting for just physical one gives a narrow perspective on human behaviors and dynamics. The authors believe that this information sheds new practical and philosophical perspectives on several concepts, like "free thinking", "knowledge", etc.. Moreover, it expands the meaning of "intuition", that becomes the bridge to a broader field of true knowledge.

Phenomenology of the Encounter, Working with Destiny using the Goethean Observation Method

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Using the scientific observation methods put forth by J.W. von Goethe, and as incorporated into Rudolf Steiner's philosophy of anthroposophy, a technique for deep personal work has been successfully developed and practiced. The technique works by analyzing encounters and events with the Goethean observation method as well as a "night work" methodology used for psychotherapy and individual/social development. Combined, the methods help transform the patient's understanding of what has happened to them. Consequently, this aids them in moving positively forward in their lives. By giving deep insight, as well as a different healing perspective, the technique reveals, to both practitioner and patient, a positive learning process in understanding one's destiny so that decisions and actions can be made in more conscious and constructively ways.

Encounters with other people guide us in setting the path of our destiny. They provide us with opportunities to resolve our problems, to learn, and to transform our personality and relationships. Each encounter and event has a potential healing power but many are often not fully conscious of this. When deep observation begins, one can realize what is potentially revealed, and this can be effectively used in setting or adjusting course for one's destiny. Conventional science considers phenomenon as something that hides the truth. When Goethe's science is applied to life events, astonishing results can be realized. The phenomena which appear in life might not be as random as thought, and might indeed reveal something of greater meaning if one can be open to delving deeper than normal into these experiences and encounters.

Briefly, in conjunction with the "night work" preparation, the Goethean observation starts with the "physical/perceptive stage": a description of what occurred, and what external deeds were placed in space, external, and in objective time, all without interpretations, judgments, sympathy and/or antipathy. The observation method continues deeper into the "etheric/imagination stage", wherein one can observe the deeds in inner time and the feelings during the events. On the "astral/inspiration stage" one then has to distinguish between the emotions felt during the encounter and what the encounter is indicating in itself. Finally, on the "I (ego)/intuition stage", one uses their creative thinking to discover the wisdom that the encounter has offered.

The authors are choosing to encourage the emergence of this level of Goethean observation to the larger community at large rather than be limited to anthroposophic circles. Three case studies, as examples, chosen from many sessions, will be presented, along with the details of how the project modalities are used as tools in therapeutic counseling sessions. The overall result of these Goethean observations, as applied to the "phenomenology of the encounter" place this study into the larger context of the field of psychotherapeutic approaches. Goethe's more subjective scientific methods, though pushed aside by the dominant Newtonian objective science, are equally enduring and valid as we move forward in integrating a more holistic understanding of the world around us and fully develop our understanding of the inherent nature of the inter-subjectivity of knowledge.

The Search for the Definition of Life (the *other* Missing Link in Life Sciences) on Earth and in the Universe

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Throughout the ages, mankind has had different concepts about life and death on Earth and in the universe, ranging from different types of pantheism (panpsychism) to different concepts, such as the spontaneous generation hypothesis, Erwin Schrödinger's physical elaborations on life, to today's strict cell-based and genetic definition as it is known on Earth. Impressive, costly research projects and expeditions are undertaken both on Earth as well as in space to explore this further. Principally, four strategies are used by different parts of today's science community:

- i) the interdisciplinary research field astrobiology, with the goal to understand the origin and survival chances of life in on Earth and in space, by searching for simple biosignatures or primitive cell forms in space, and by exploring extremophilic microbes, since these have significantly expanded our current understanding of the limits of life (and death);
- ii) synthetic/artificial biology with the aim to synthesize life and develop a new understanding of life, or even new concepts of life;
- iii) the SETI approach, searching for advanced intelligent signals and civilizations (including artificial intelligence and *post* biological evolution) in the outer space;
- iv) the modern scientifically refined versions of panpsychism, from the Gaia theory developed by J. Lovelock in the 1960s to today's efforts.

Even though these strategies are impressive (in particular i-iii), the difficulty herein is that each of these strategies have their limits and that only few attempts are made to question even further beyond the research objectives of each type of strategy. Hardly any of these strategies include elaborate explorations about the concepts and evolution of intelligence (from a broader point of view rather than the reduced view), imagination, mind and consciousness. Furthermore, several new discoveries suggest that at least some of the former established viewpoints around life and molecular biology (e.g. the suggested novel roles of viruses, the impressive lifestyles of extremophilic microbes, genetics *versus* epigenetics) may have to be revised. Here, we will discuss current standpoints, new discoveries and future perspectives. Can any kind of useful connection be made between the search for a better biological definition of life and consciousness research in general? How would the established four strategies continue to develop if at least some aspects of research into intelligence and consciousness were included?