

Evolution into the Next Paradigm -

Quantum Biology 2.0

Collective Consciousness, and the Proactive Manifestation of Future History

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3/4/2019

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Are We Ready for This?

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NewScientist

Life

Are we ready for quantum biology?


17 November 2014 by [Matthew Cobb](#)

In Life on the Edge, Jim Al-Khalili and Johnjoe McFadden argue quantum effects are decisive in biology – but this challenging idea needs more proof

FOR 15 years, theoretical physicist Jim Al-Khalili and molecular geneticist Johnjoe McFadden have been discussing how quantum physics, the science of the incredibly small, might affect biology.



Stomata: does entanglement play a part in plant biology? (Image: Power And Syred/Science Photo Library)

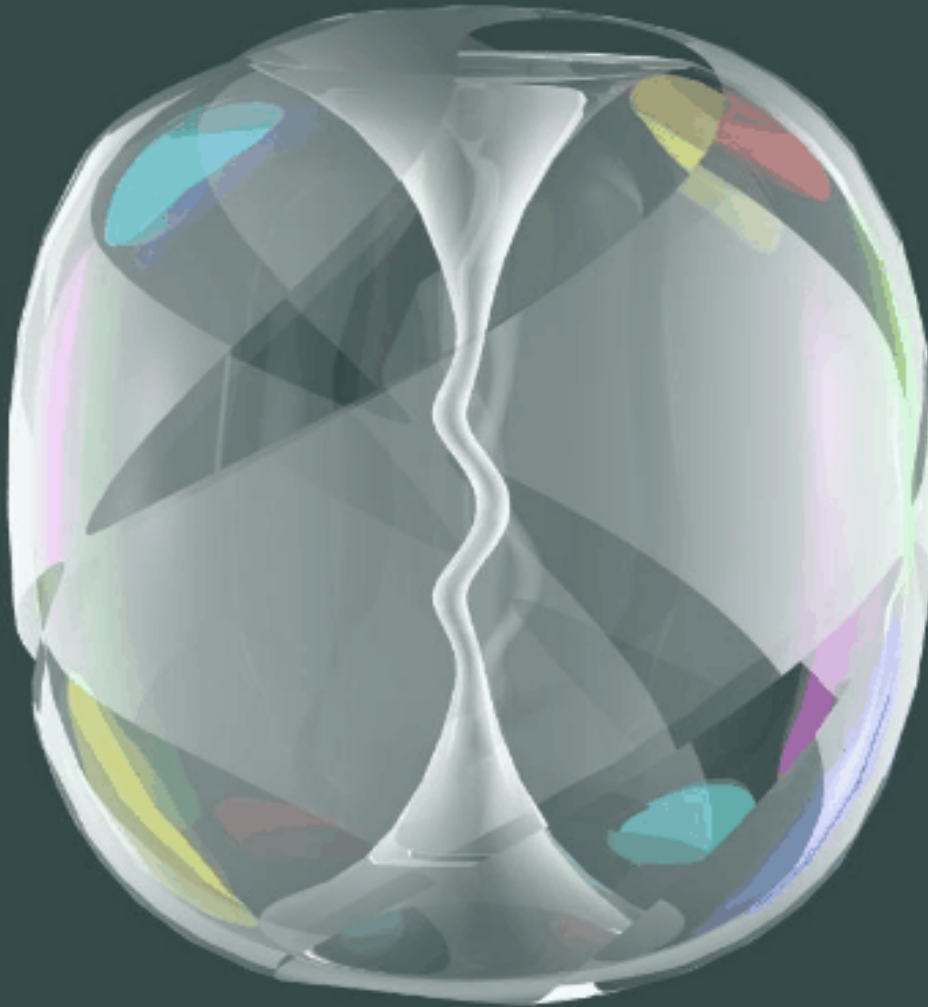


Life on the Edge

The Coming of Age
of Quantum Biology

Jim Al-Khalili
and
Johnjoe McFadden

Quantum Entanglement . . . In Biology



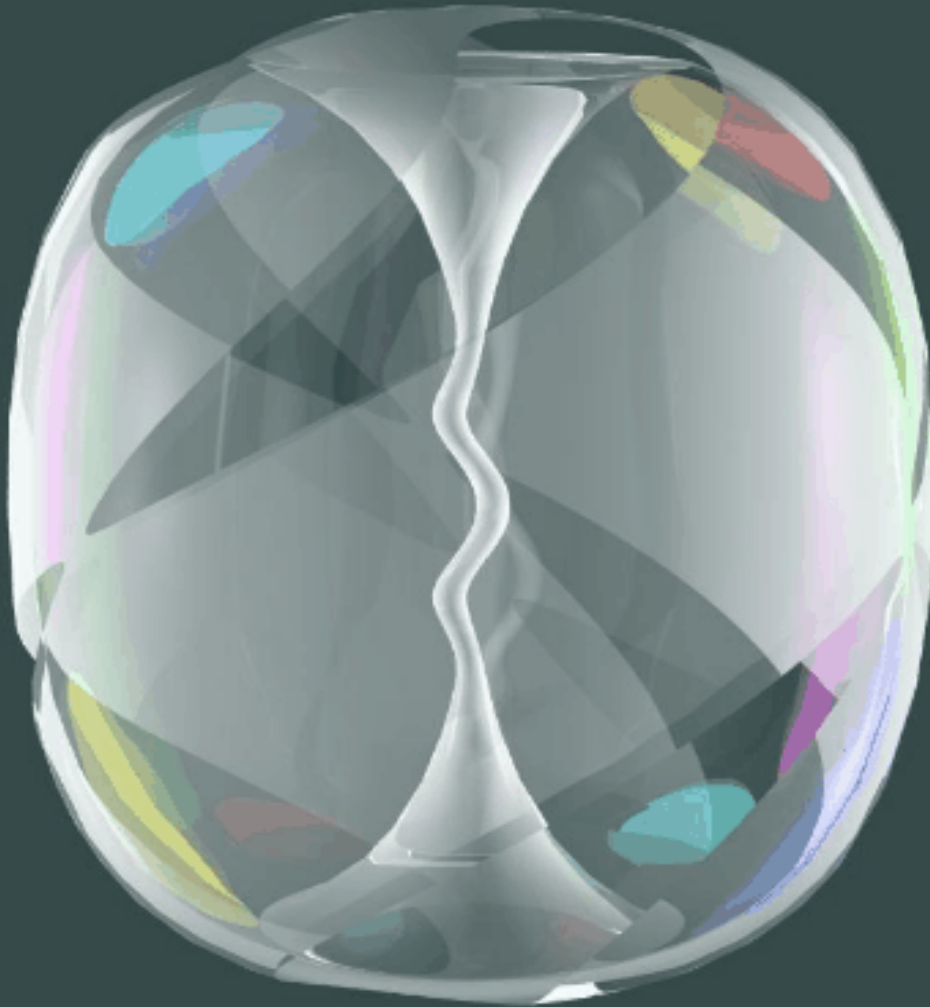
Each photon conveys not just frequency and wavelength, but also quantum information manifest in polarization, angular and orbital momentum.

Quantum Biology

Could such quantum information influence unconscious or conscious processes?

Evolutionary Event horizon

Quantum Entanglement . . . In Biology



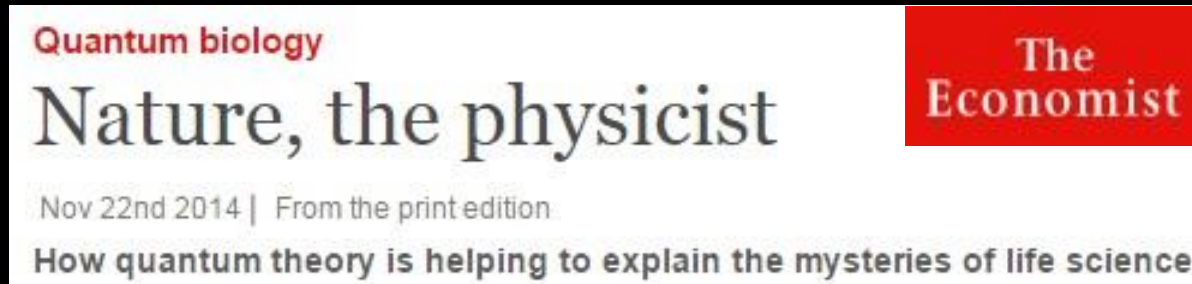
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Quantum Biology

Could such quantum information influence unconscious or conscious processes?

Evolutionary
Event horizon
Are We Ready?

Enhanced quantum entanglement interaction – Are we ready for this?



LIFE science still hides a few mysteries. How do migratory birds sense direction? How are molecules in the air perceived as a smell? How, precisely, do tadpoles lose their tails? For years, scattered views from the fringes have attempted to explain such phenomena using quantum mechanics, a weird bit of physics that predicts oddities such as particles being in multiple places at once, eerily connected across vast distances or tunneling through seemingly insuperable barriers.

Yet a growing body of experimental evidence suggests that quantum oddities may really be responsible for many of life's engineering successes.

The Holographic Perspective

- All living things are systematically interconnected
- Definition of “living things” extends to systems, processes, entities which behave biologically



"Any sufficiently advanced technology is indistinguishable from magic"

- Arthur C Clarke

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"What appears to be the future for some, is already the past for others who are unfolding it into the present" – Charles Ostman

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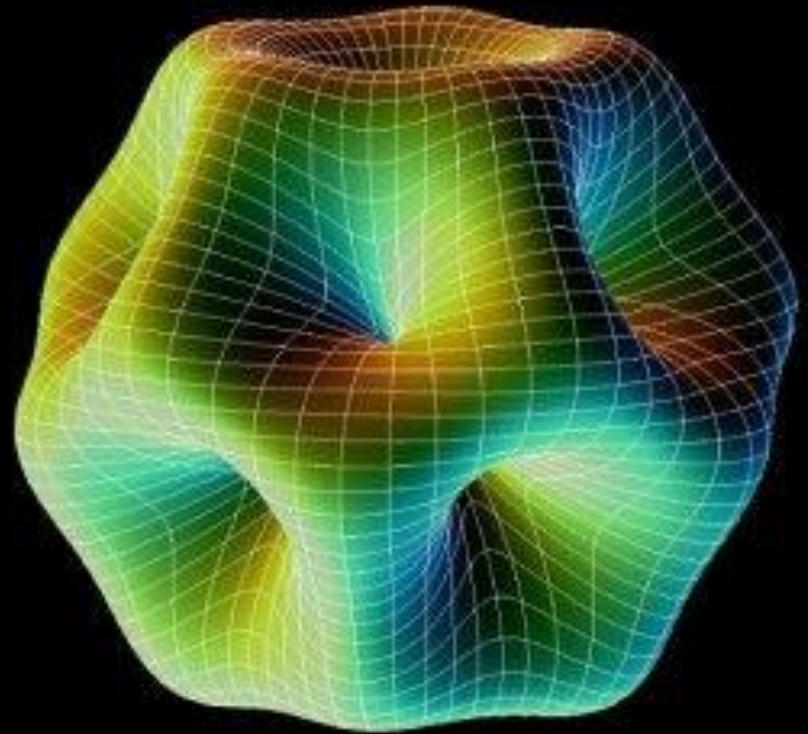
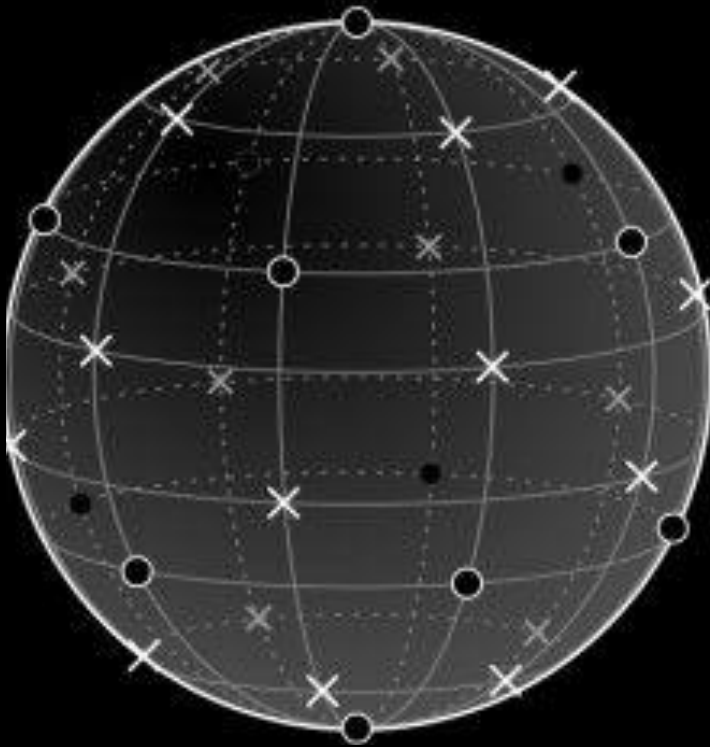
"What appears to be the future for some, is already the past for others who are unfolding it into the present – Charles Ostman

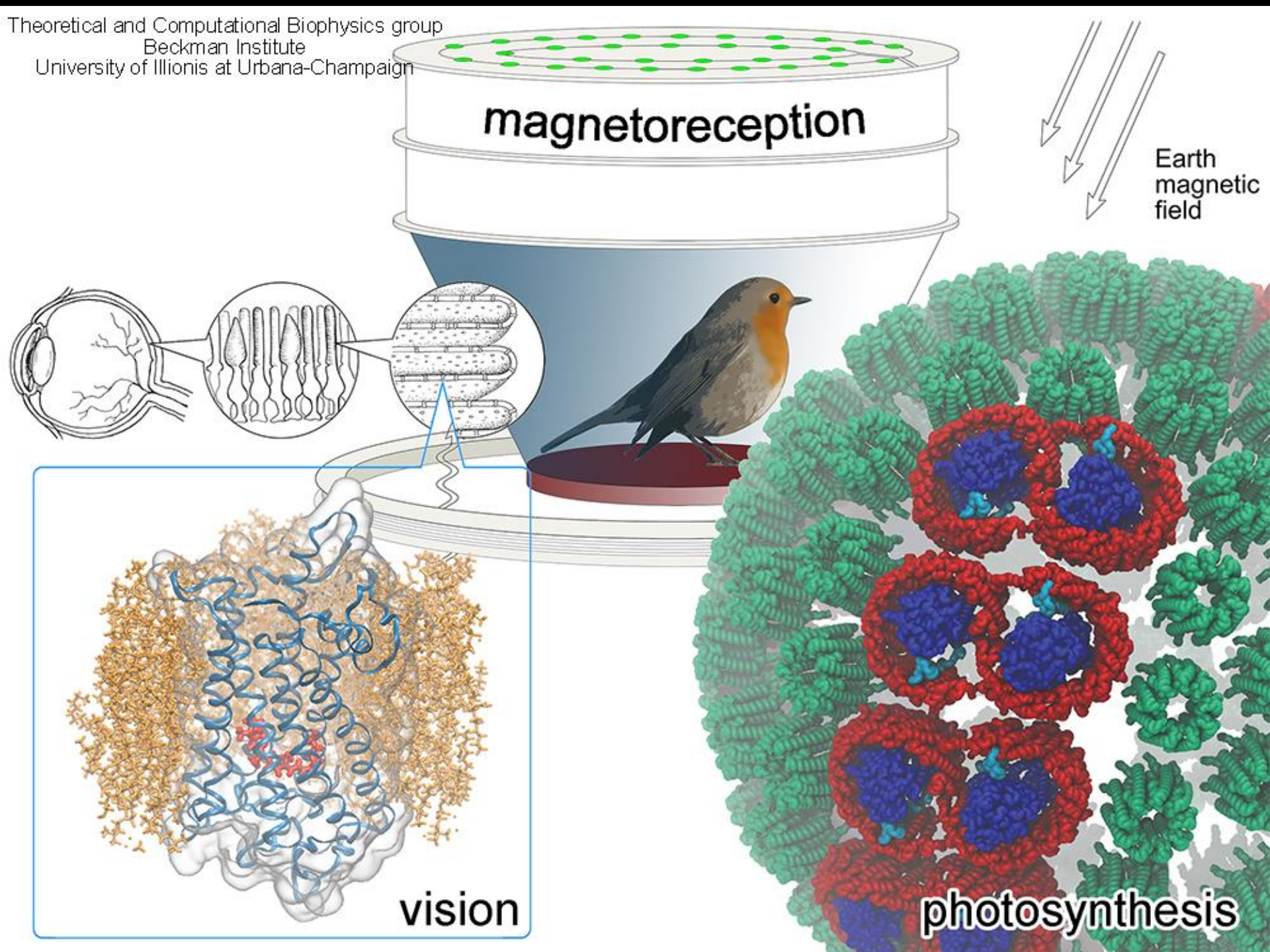
"Quantum biology, which appears magical to some, has always been ubiquitous everywhere, but may not be evenly recognized"



Space-Time Elasticity

We are not confined to a 4D universe





Quantum biology

Nature, the physicist

How quantum theory is helping to explain the mysteries of life science

Quantum biology

Neill Lambert, Yueh-Nan Chen, Yuan-Chung Cheng, Che-Ming Li, Guang-Yin Chen & Franco Nori

Affiliations | Corresponding authors

Nature Physics 9, 10–18 (2013) | doi:10.1038/nphys2474

Received 01 Jul 2012 | Accepted 04 October 2012 | Published online 09 December 2012

Abstract

Abstract • Introduction • Quantum coherent energy transport in photosynthesis • Avian magnetoreception • Other quantum biological systems • Conclusions • References • Acknowledgements • Author information

Recent evidence suggests that a variety of organisms may harness some of the unique features of quantum mechanics to gain a biological advantage. These features go beyond trivial quantum effects and may include harnessing quantum coherence on physiologically important timescales. In this brief review we summarize the latest results for non-trivial quantum effects in photosynthetic light harvesting, avian magnetoreception and several other candidates for functional quantum biology. We present both the evidence for and arguments against there being a functional role for quantum coherence in these systems.

Quantum coherence
in biological systems
— A radical concept

The dawn of quantum biology

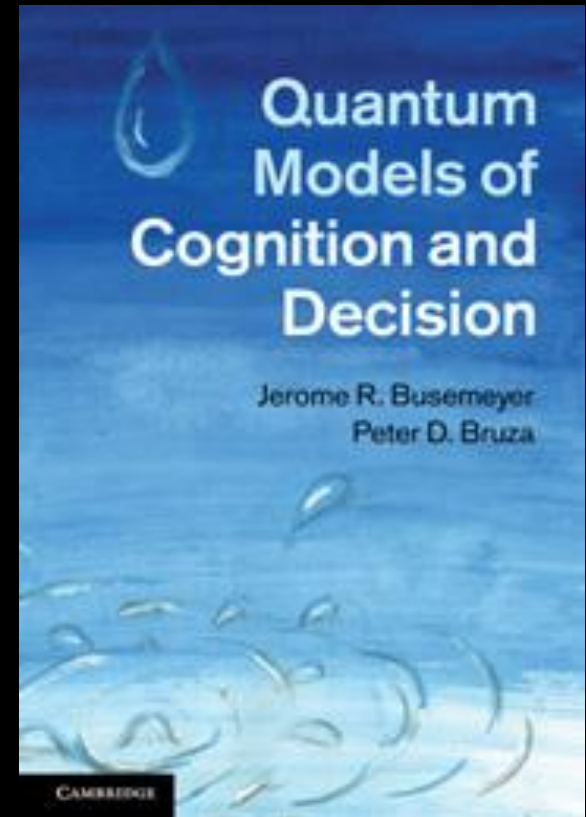
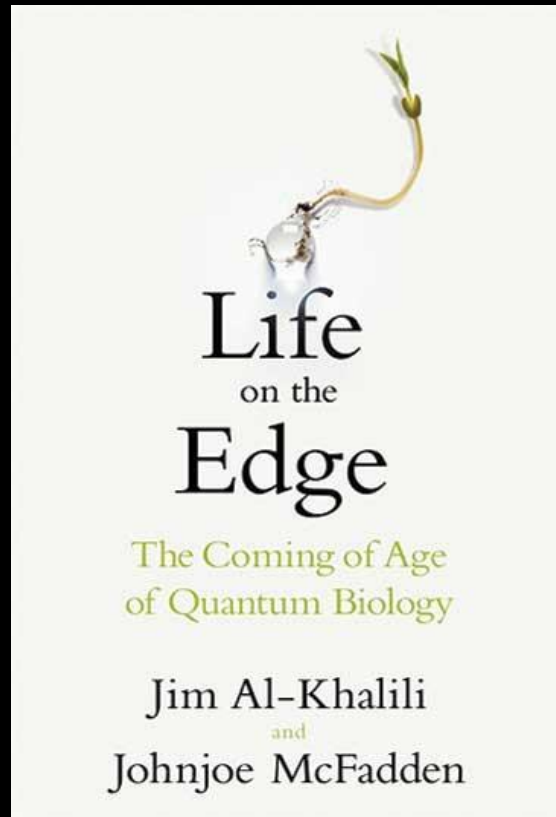
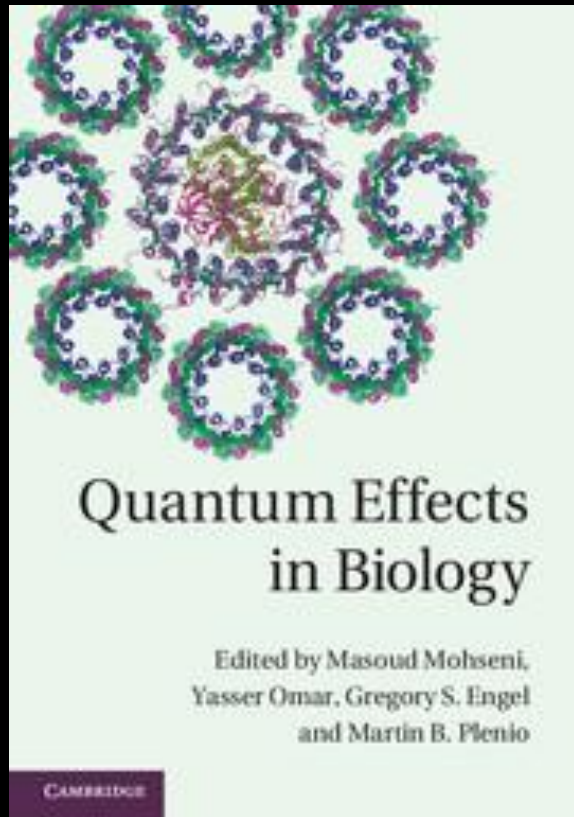
The key to practical quantum computing and high-efficiency solar cells may lie in the messy green world outside the physics lab.

BY PHILIP BALL

On the face of it, quantum effects and living organisms seem to occupy utterly different realms. The former are usually observed only on the nanometre scale, surrounded by hard vacuum, ultra-low temperatures and a tightly controlled laboratory environment. The latter inhabit a macroscopic world that is warm, messy and anything but controlled. A quantum phenomenon such as 'coherence', in which the wave patterns of every part of a system stay in step, wouldn't last a microsecond in the tumultuous realm of the cell.

Or so everyone thought. But discoveries in recent years suggest that nature knows a few tricks that physicists don't: coherent quantum processes may well be ubiquitous in the natural world. Known or suspected examples range from the ability of birds to navigate using Earth's magnetic field to the inner workings of photosynthesis — the process by

Quantum Entanglement . . . In Biology



Philos Trans A Math Phys Eng Sci. Aug 13, 2012; 370(1972): 3613–3617.

PMCID: PMC3385675

doi: [10.1098/rsta.2012.0192](https://doi.org/10.1098/rsta.2012.0192)

Quantum-coherent energy transfer: implications for biology and new energy technologies

[Alexandra Olaya-Castro](#),^{1,*} [Ahsan Nazir](#),² and [Graham R. Fleming](#)³

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*The important thing in science is not so much to obtain
new facts as to discover new ways of thinking about them.*

Sir William Henry Bragg Nobel Prize For Physics, 1915

There is a growing body of scientific evidence that light-initiated reactions in the molecular components of photosynthetic organisms can display quantum-coherent behaviour in their dynamics at ambient conditions. In the simplest picture, quantum-coherent contributions to the dynamics of electronic excitations imply that excitation transfer can be accompanied by superpositions of quantum states sustaining well-defined phase relationships for times long enough to affect transport at the molecular scale.

The experimental observation of coherence oscillations during energy transfer dynamics has ignited interest (and controversy) in the possible biological function of such quantum-coherent behaviour, and also in the way it could be exploited for efficient and robust man-made devices powered by light.

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DUELLING RECORDS

Teams based in China and Austria have competed for seven years to establish milestones — first for the separation of entangled particles, which define the ends of a quantum telephone line, and then for the teleportation of information along the line.



Data teleportation: The quantum space race

Fierce rivals have joined forces in the race to teleport information to and from space.

Zeeya Merali

05 December 2012

Quantum teleportation —
Entangled photons, across
the surface of the planet,
land to air, Earth to space

THE QUANTUM SPACE RACE

Fierce rivals have joined forces in the race to teleport information to and from space.

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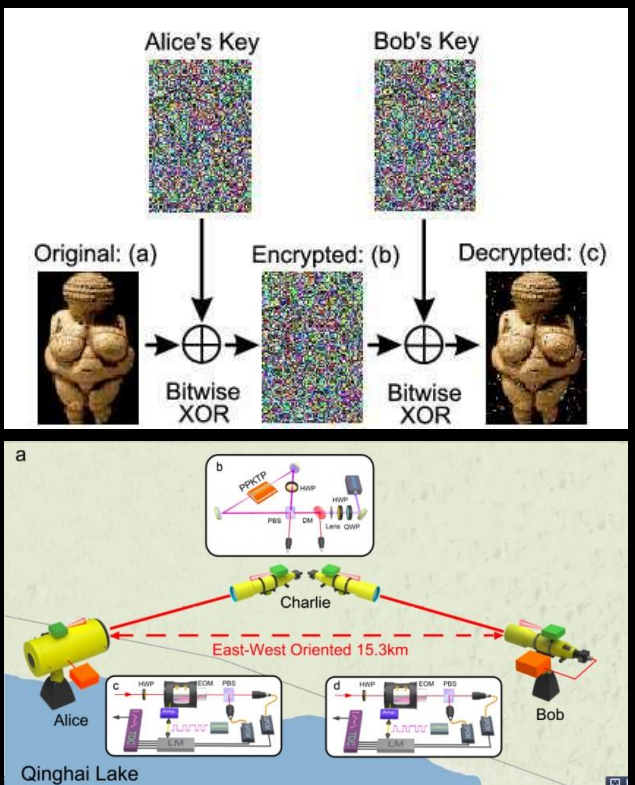
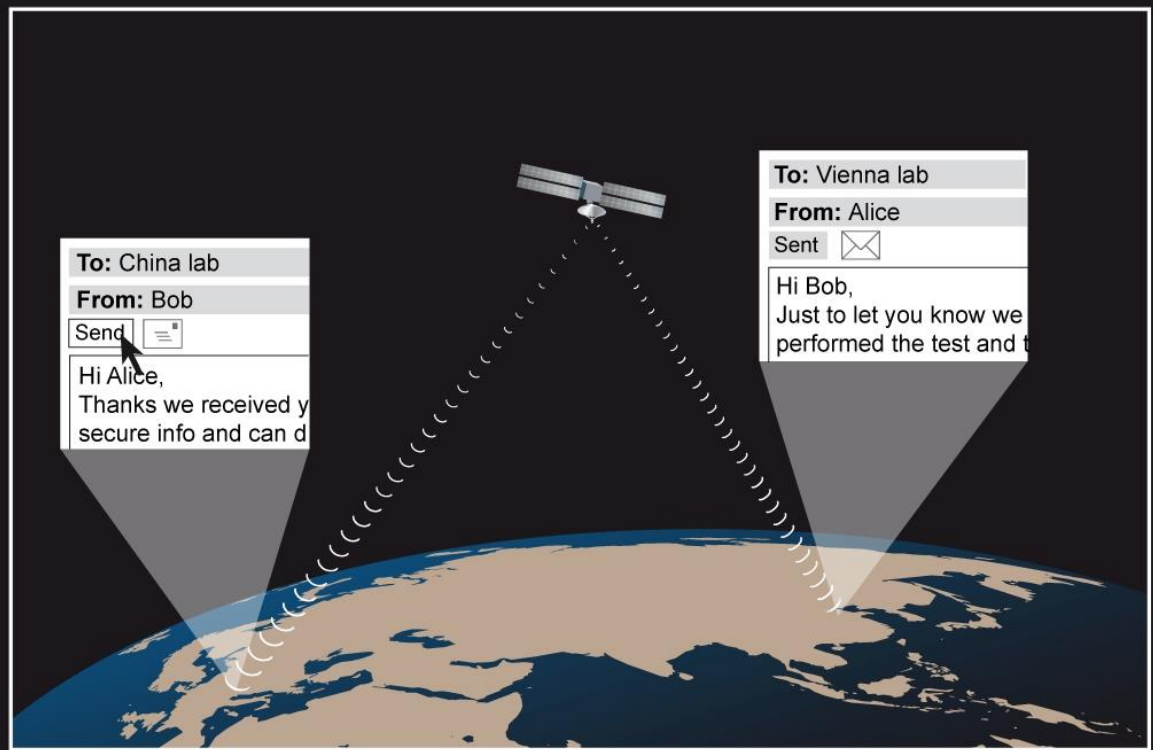
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05 December 2012



Quantum Encryption . . . Quantum Teleportation

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□ All networks are vulnerable



Alice's Key



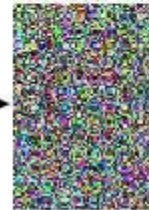
Bob's Key



Original: (a)



Encrypted: (b)

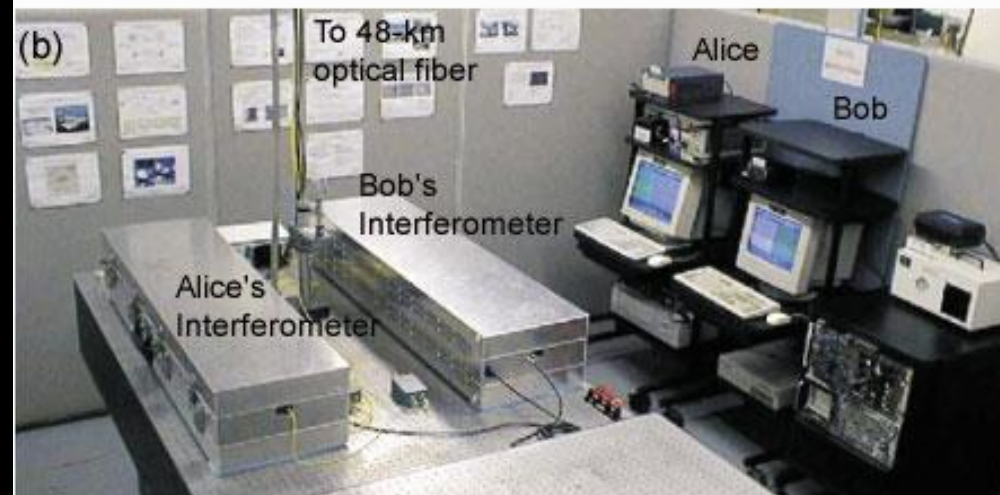
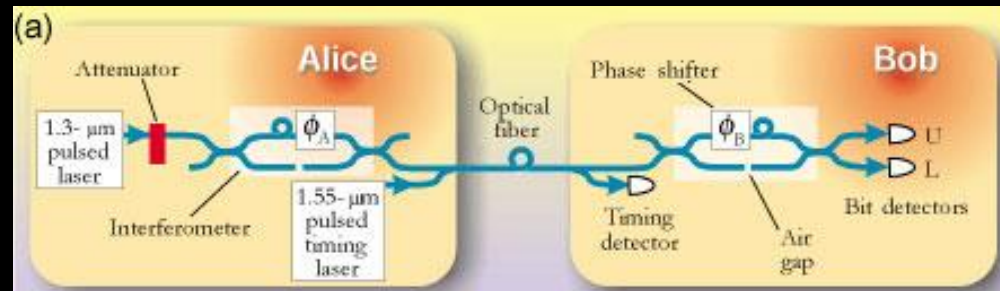


Decrypted: (c)



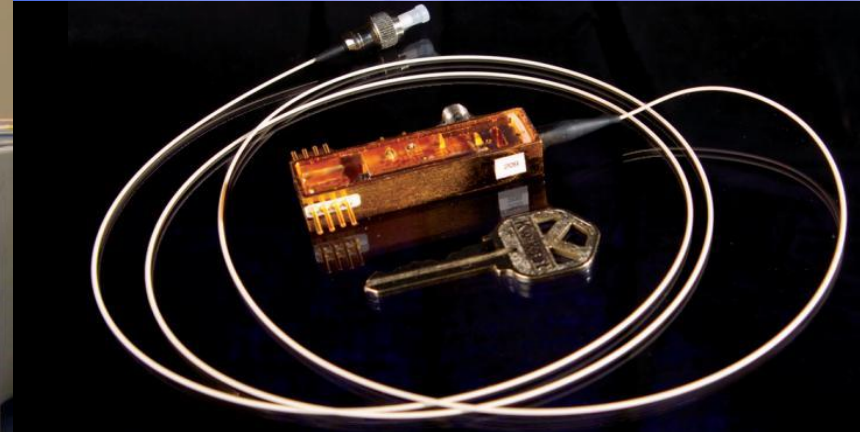
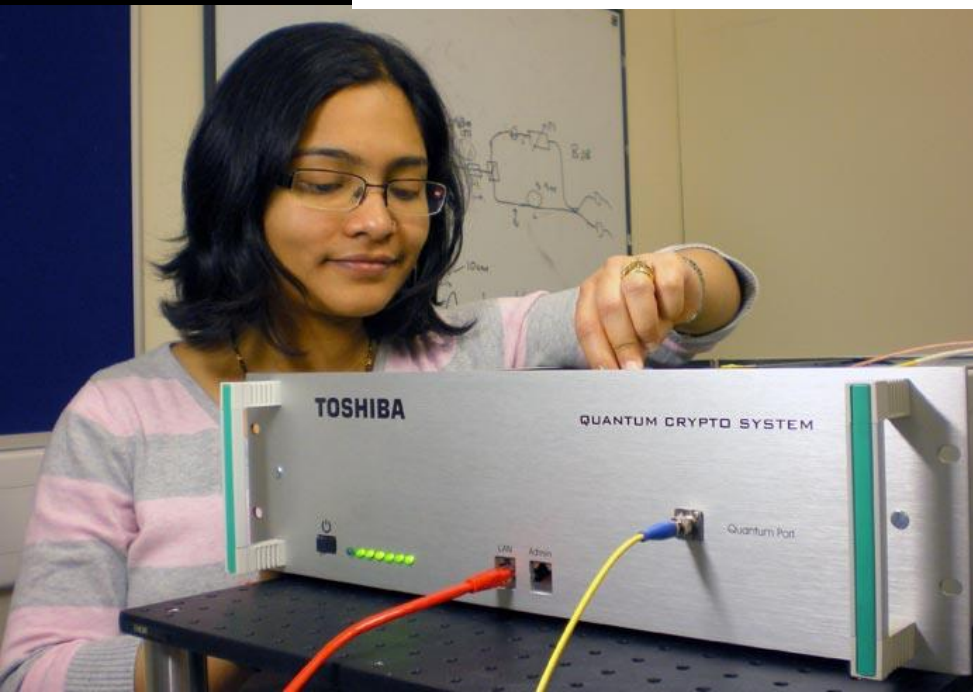
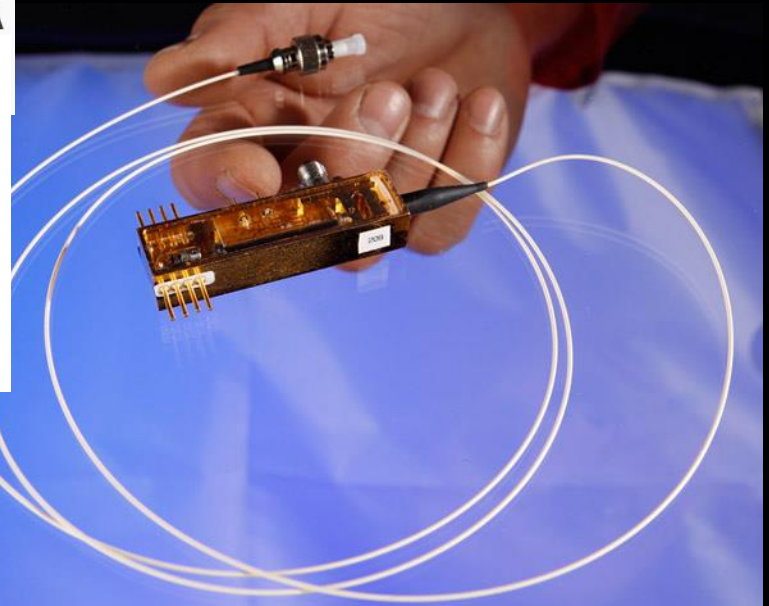
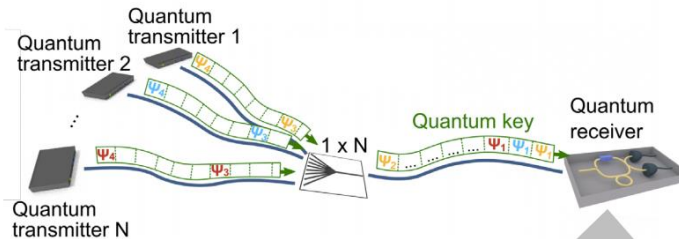
Bitwise XOR

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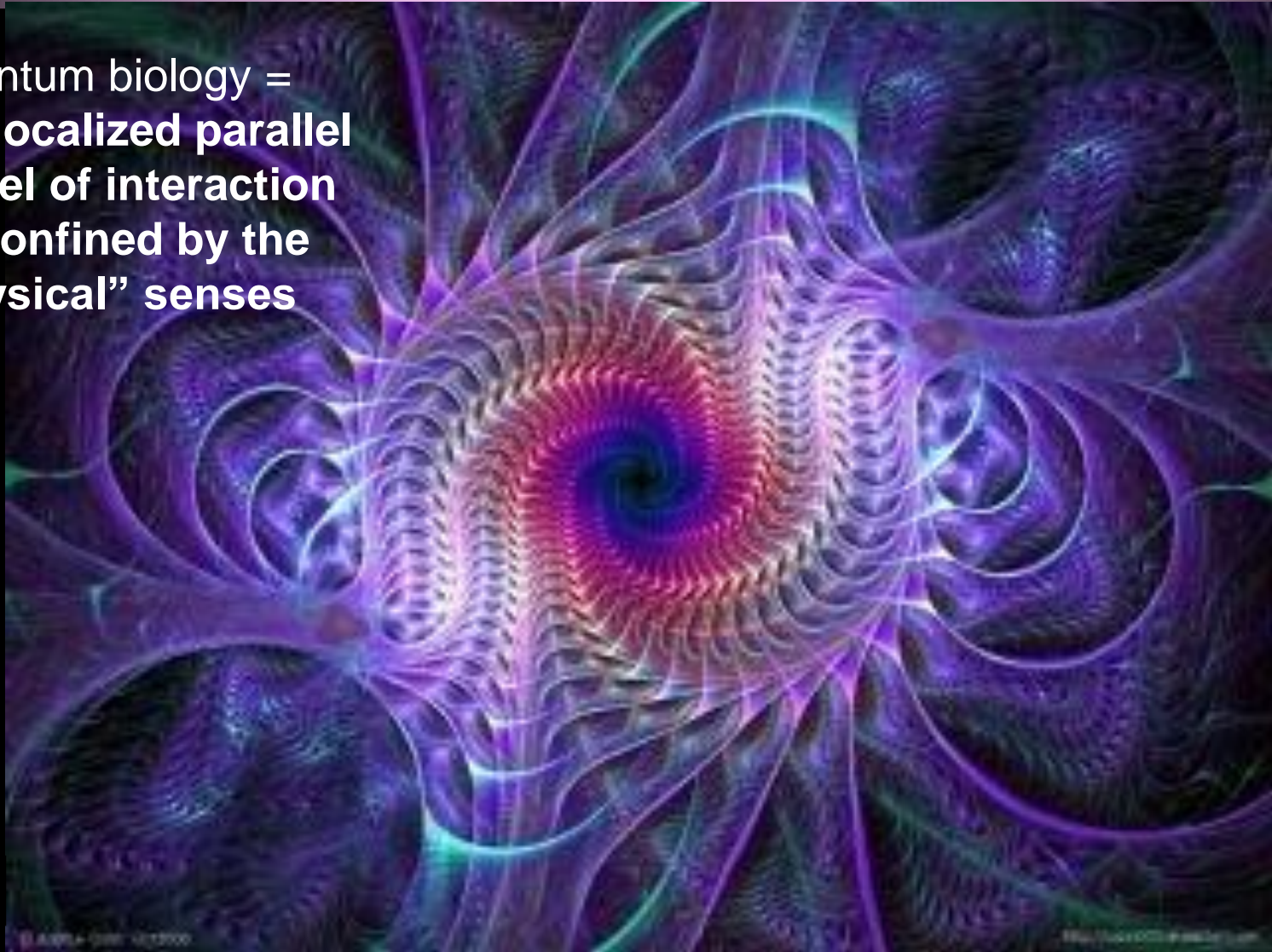
Quantum Encryption . . . Quantum Teleportation

Toshiba has invented a quantum cryptography network that even the NSA can't hack



Quantum Entanglement . . . In Biology

Quantum biology =
**A non-localized parallel
channel of interaction
not confined by the
“physical” senses**

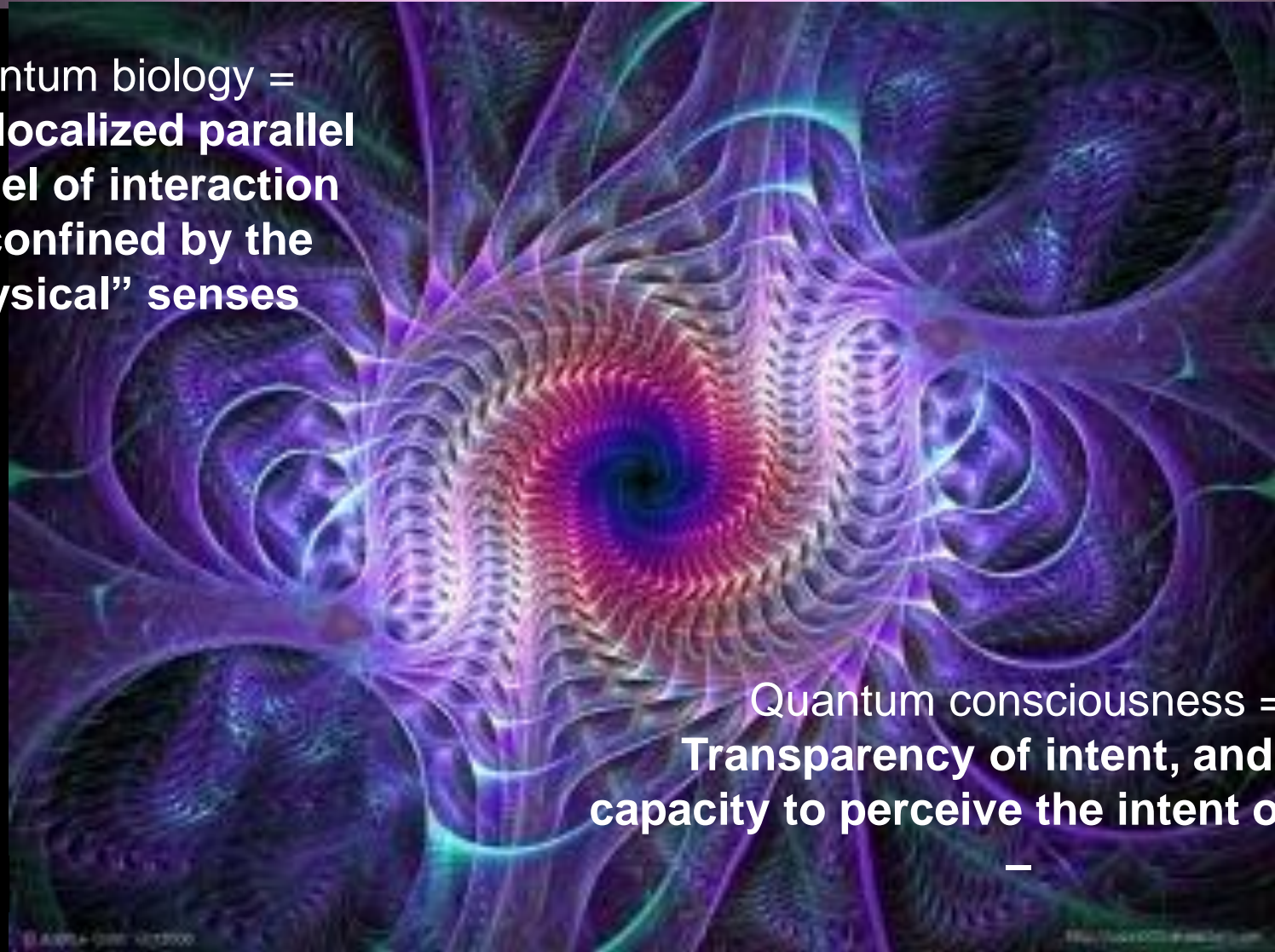


Quantum Entanglement . . . In Biology

Quantum biology =
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Quantum consciousness =
**Transparency of intent, and the
capacity to perceive the intent of others**

—



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—
both voluntary, and involuntary



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**As an evolutionary
event horizon – Are we
ready for this?**

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Quantum Entanglement . . . In Biology

Quantum biology =
**A non-localized parallel
channel of interaction
not confined by the
“physical” senses**

**Requires adaptation to
otherwise unperceivable
versions of “truth”**

Quantum consciousness =
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—
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Pieces of a Complex Puzzle – Assemble the Pieces into a Coherent Picture?

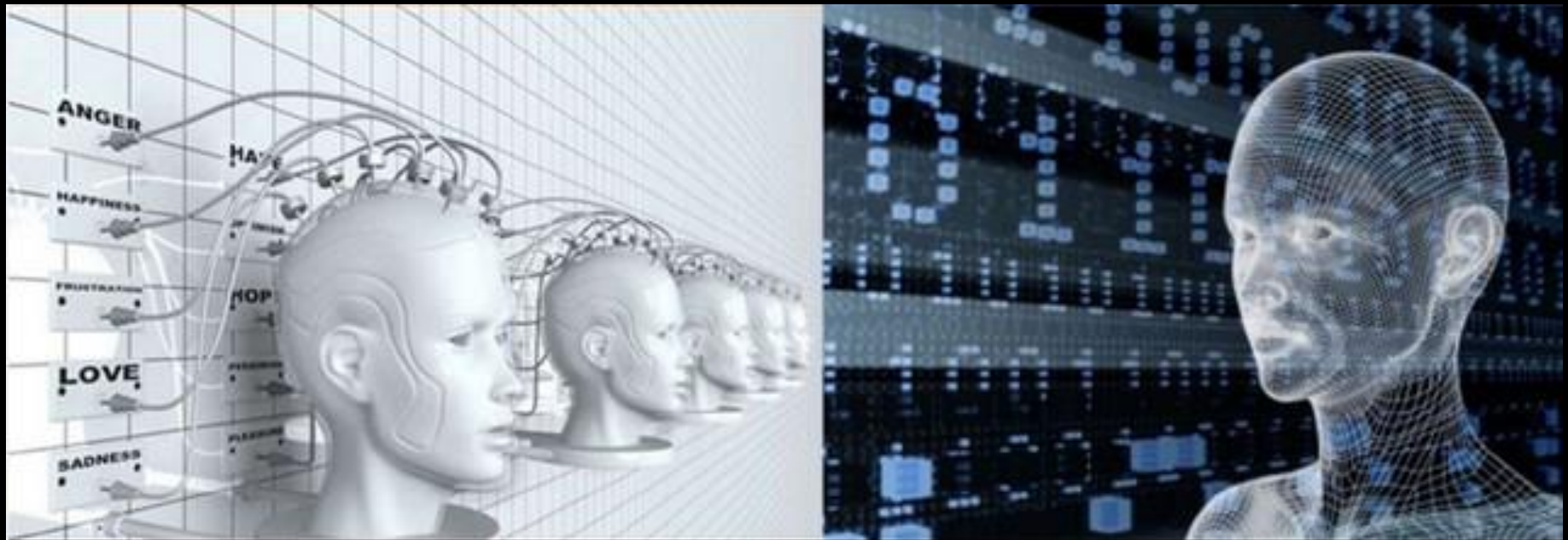


Pieces of a Complex Puzzle – Assemble the Pieces into a Coherent Picture?



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

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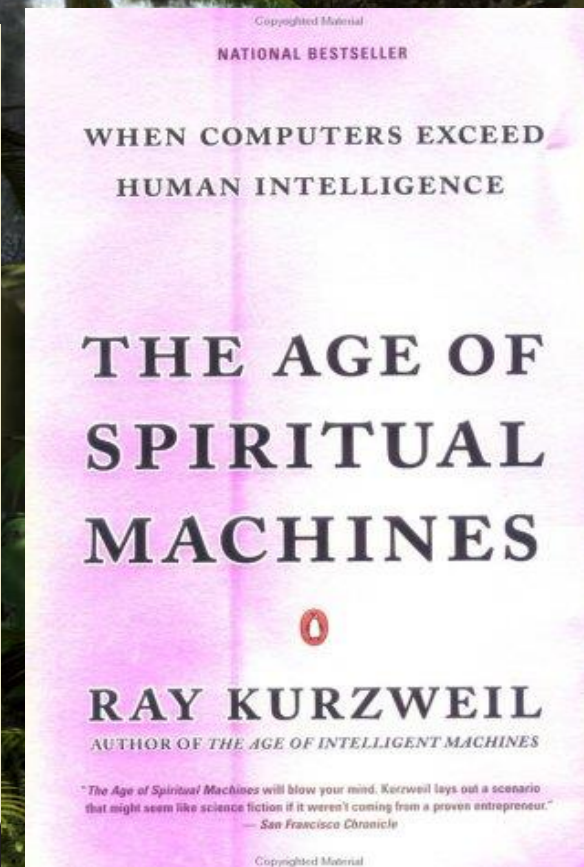
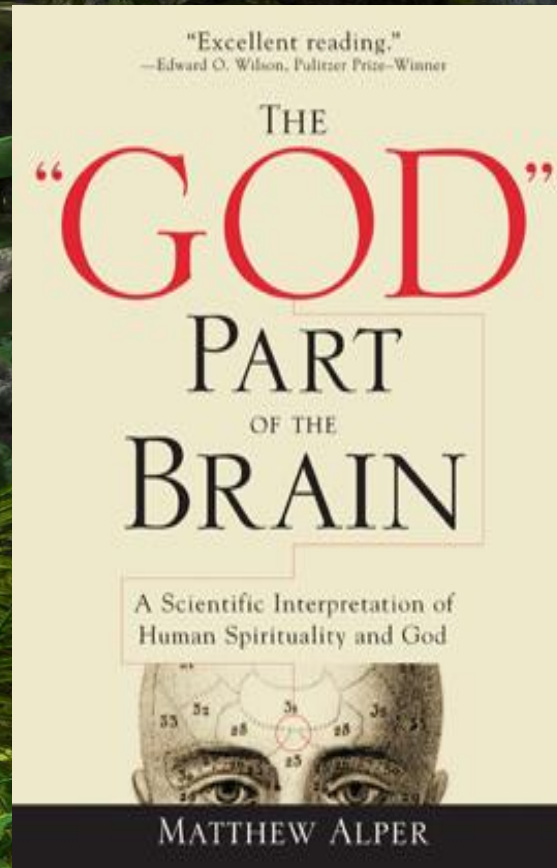
A Futuristic Short Film HD by Sight Systems.mp4



A Futuristic Short Film HD by Sight Systems.mp4

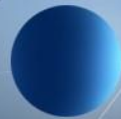
Existence Imperatives of the Evolutionary Eventstream

- ❑ A new threshold is now being encountered, for which there is no precedent in known history —
- ❑ Define “natural”
- ❑ Define “organic”
- ❑ Define “life”
- ❑ Define “existence”



Existence Imperatives of the Evolutionary Eventstream

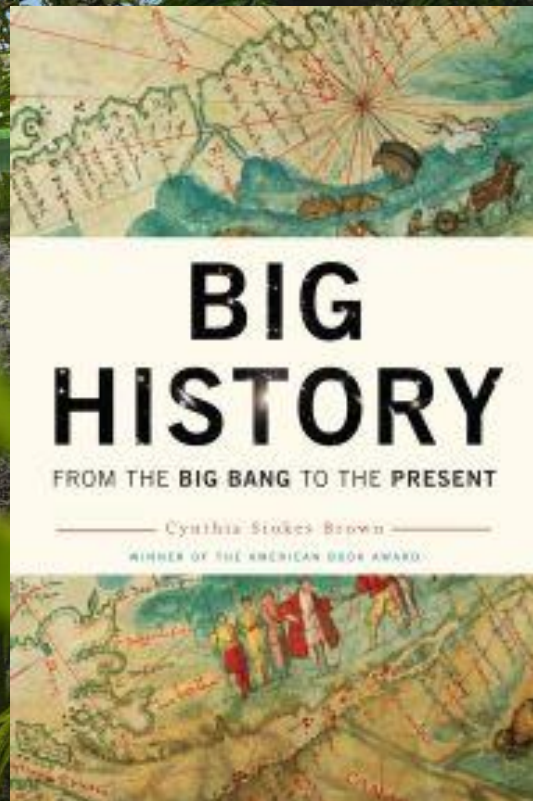
□ Define “existence”



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- Evolution of the Earth
- Evolution of Life
- Social Evolution
- Different Forms of Evolution: Connections and Comparisons
- Globalization within the Context of the Global Evolution
- Forecasting Global Future
- Big History Trends and Phases
- Teaching Big History



**Dr. Stuart Hameroff,
M.D. — Microtubules &
quantum
consciousness**

**Proteomic
Q-bits**



**Sir Roger Penrose —
The quantum nature of
consciousness**

**Orchestrated objective
reduction (Orch OR)**

Define “existence”

The need for a physical basis of cognitive process Comment on “Consciousness in the universe. A review of the ‘Orch OR’ theory” by Hameroff and Penrose

Jack A. Tuszynski^{a,b,*}

^a Department of Oncology, University of Alberta, Edmonton, Alberta, Canada

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Received 1 October 2013; accepted 15 October 2013

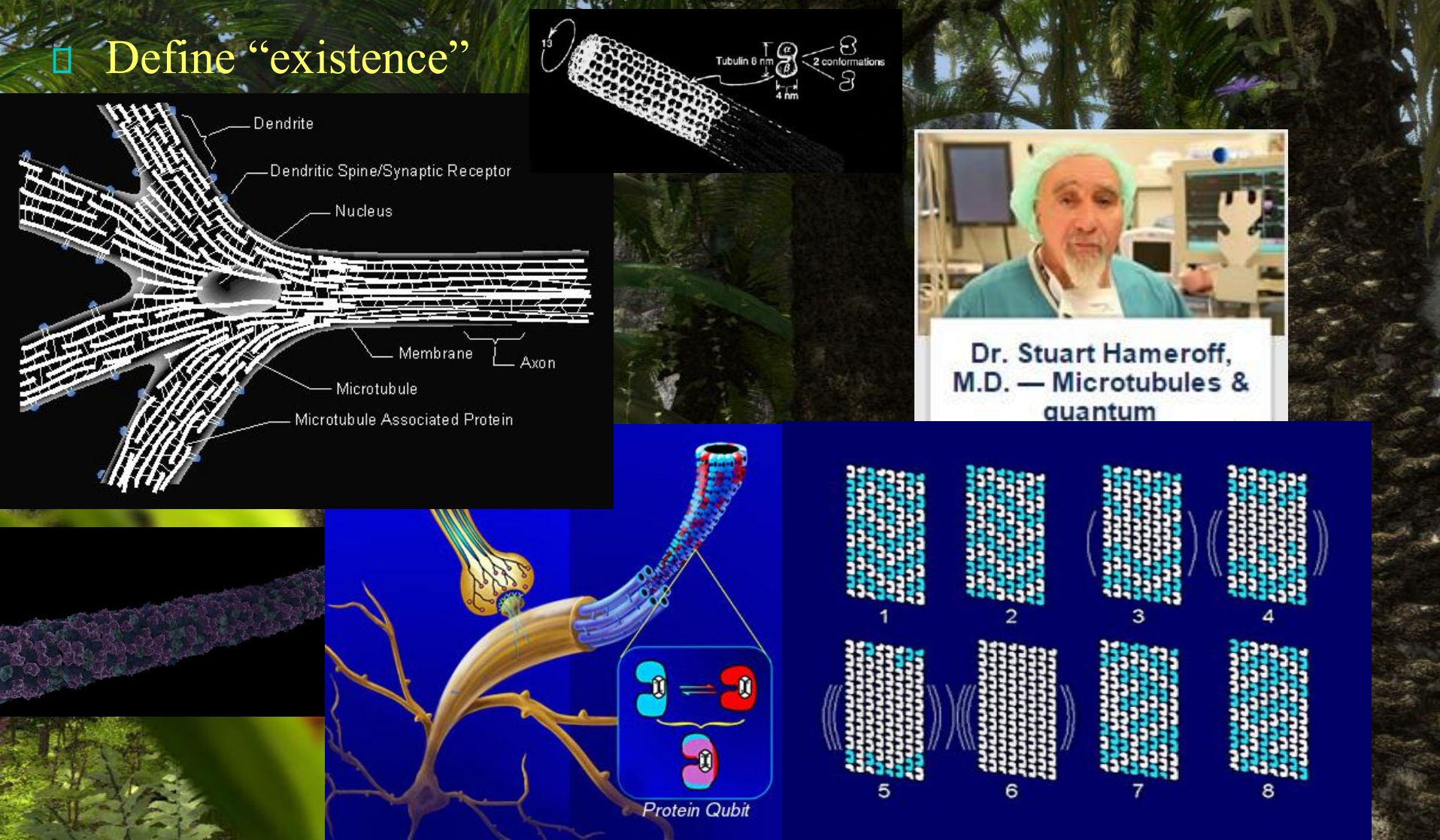
Available online 18 October 2013

Communicated by L. Perlovsky

Does consciousness belong in the realm of natural sciences? This question has been on the minds of many scientists whose opinions diverge due to the subjective nature of consciousness. The existence of this phenomenon cannot be denied as we all experience it as sentient humans. Hameroff and Penrose over the past two decades generated a large body of literature [1] and generated a theory known as “Orch OR” (orchestrated objective reduction). It is an attempt to place consciousness within the empirical sciences as a fundamental concept in science. This is in contrast to emergent phenomenon approaches or spiritualistic/dualistic concepts. Orch OR has linked this phenomenon to numerous enigmatic features and observations ranging from the intelligent behavior of single-cell organisms to anesthesia. The central postulate of the Orch OR theory is that the site of action of consciousness is located within the brain’s microtubules (MTs) which operate at the interface between classical neurophysiology and quantum gravitational forces.

Existence Imperatives of the Evolutionary Eventstream

Define “existence”



Existence Imperatives of the Evolutionary Eventstream

□ Define “existence”

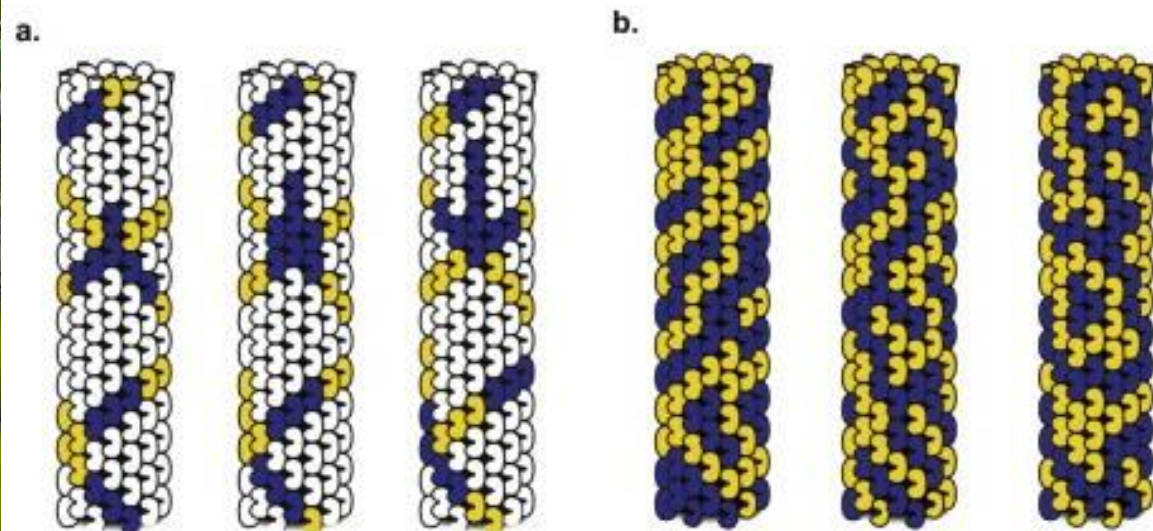
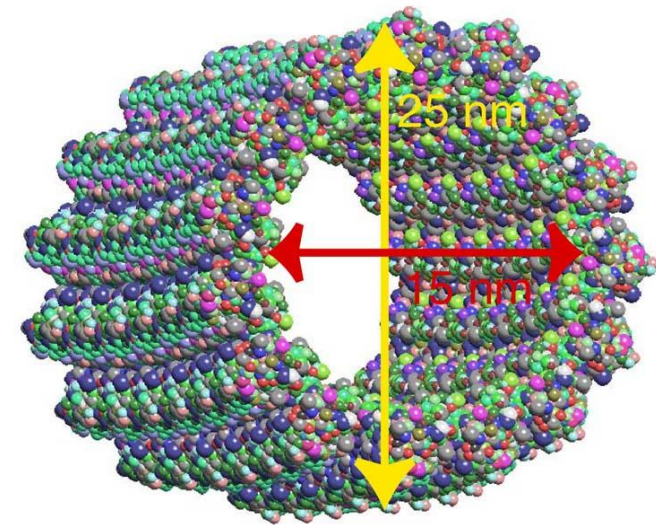


Fig. 3.

Three time-steps (e.g. at 10 megahertz) of a microtubule automaton. Tubulin subunit dipole states (yellow, blue) represent information. (a) Spin currents interact and compute along spiral lattice pathways. For example (upper, middle in each microtubule) two upward traveling blue spin waves intersect, generating a new vertical spin wave (a 'glider gun' in cellular automata). (b) A general microtubule automata process [56].

Microtubule showing dimensions and a different color for each amino acid



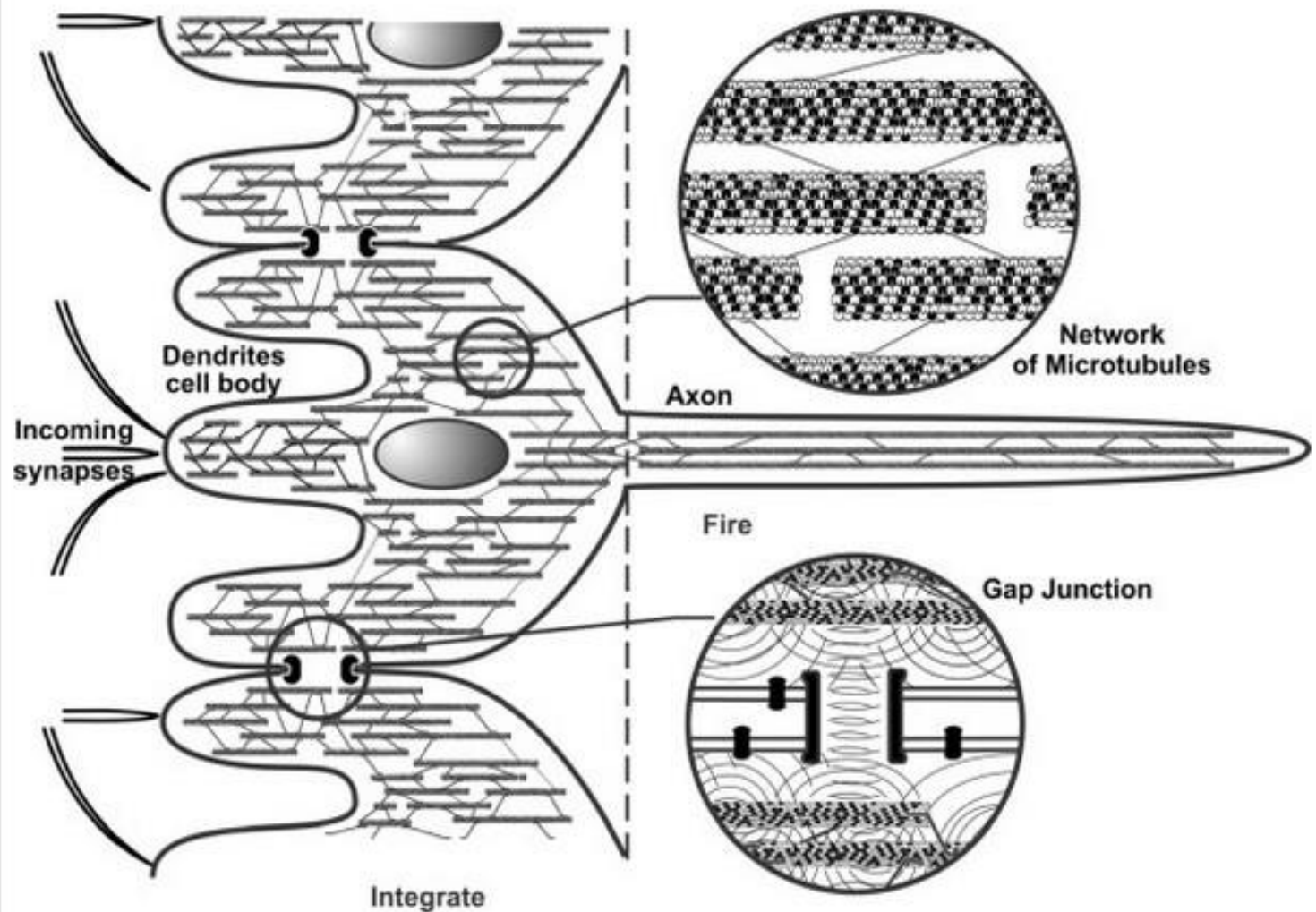


Fig. 1.

An 'integrate-and-fire' brain neuron, and portions of other such neurons are shown schematically with internal microtubules. In dendrites and cell body/soma (left) involved in integration, microtubules are interrupted and of mixed polarity, interconnected by microtubule-associated proteins (MAPs) in recursive networks (upper circle, right). Dendritic-somatic integration (with contribution from microtubule processes) can trigger axonal firings to the next synapse. Microtubules in axons are unipolar and continuous. Gap junctions synchronize dendritic membranes, and may enable entanglement and collective integration among microtubules in adjacent neurons (lower circle right). In Orch OR, microtubule quantum computations occur during dendritic/somatic integration, and the selected results regulate axonal firings which control behavior.

□ Define “existence”

PHYSICS OF LIFE REVIEWS

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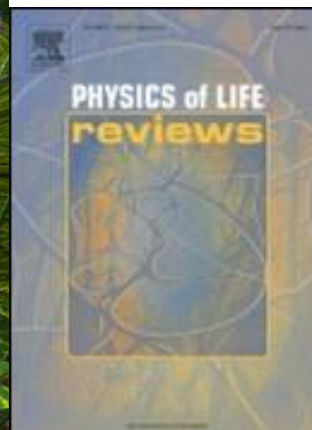
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VOLUME 11, 2014



Discovery of quantum vibrations in 'microtubules' inside brain neurons supports controversial theory of consciousness

ScienceDaily[®]

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❑ Define “existence”

Date: January 16, 2014

Source: Elsevier

Summary: A review and update of a controversial 20-year-old theory of consciousness claims that consciousness derives from deeper level, finer scale activities inside brain neurons. The recent discovery of quantum vibrations in "microtubules" inside brain neurons corroborates this theory, according to review authors. They suggest that EEG rhythms (brain waves) also derive from deeper level microtubule vibrations, and that from a practical standpoint, treating brain microtubule vibrations could benefit a host of mental, neurological, and cognitive conditions.

An important new facet of the theory is introduced. Microtubule quantum vibrations (e.g. in megahertz) appear to interfere and produce much slower EEG "beat frequencies." Despite a century of clinical use, the underlying origins of EEG rhythms have remained a mystery. Clinical trials of brief brain stimulation aimed at microtubule resonances with megahertz mechanical vibrations using transcranial ultrasound have shown reported improvements in mood, and may prove useful against Alzheimer's disease and brain injury in the future.

Existence Imperatives of the Evolutionary Eventstream

Define “existence”



The Millennium Project

A global foresight network of nodes, information, and software.

Functioning as a think tank on behalf of humanity, not on behalf of a government, an issue, or an ideology.

Created to improve humanity's prospects for building a better future.



The Millennium Project

Futures Research Methodology

Editors Jerome C. Glenn and Theodore J. Gordon
With support from the Rockefeller Foundation

Version 3.0

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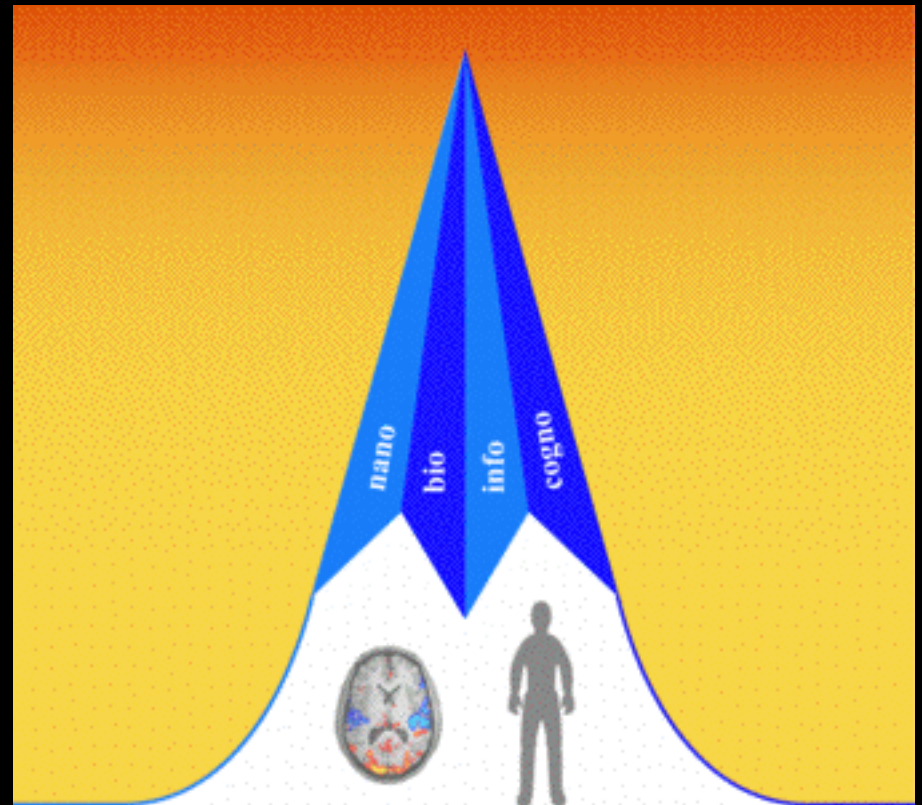
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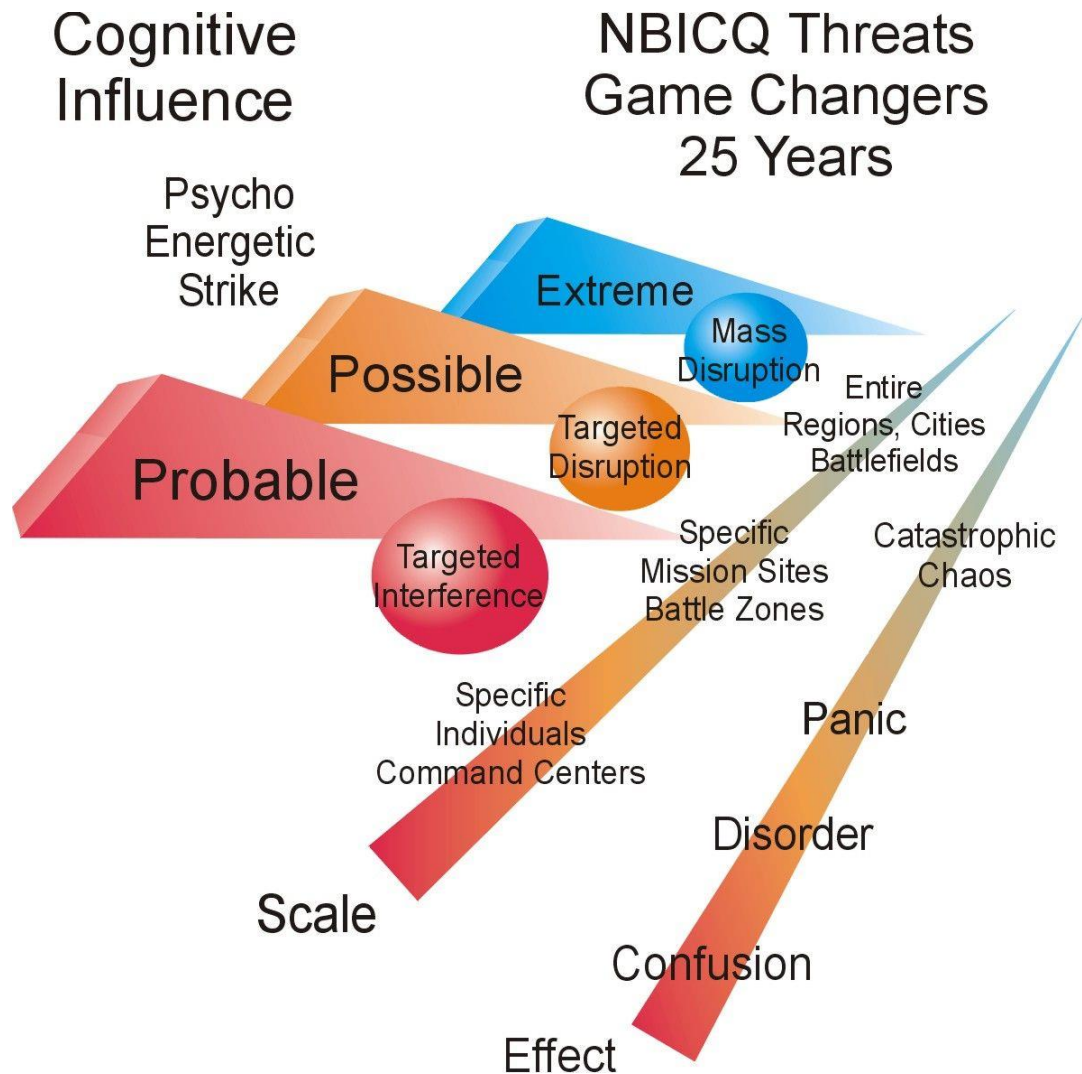
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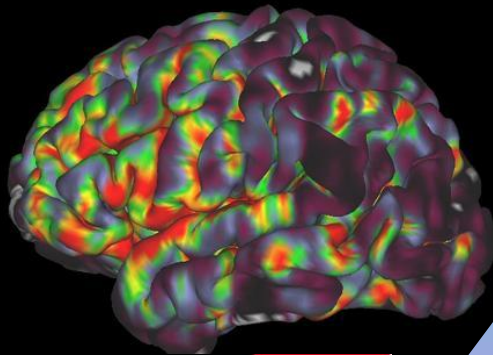
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The “other side” of
the NBICQ spectrum
convergence –
Perceived strategic
perspectives

Evolution into the Next Paradigm – Precursor to the Quantum Biology Paradigm

Existence sovereignty



Presented clip



Clip reconstructed
from brain activity



Neurological sovereignty

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Information sovereignty

Evolution into the Next Paradigm -

Existence sovereignty

Scientists use brain imaging to reveal the movies in our mind

By [Yasmin Anwar](#), Media Relations | September 22, 2011



Psychology and neuroscience professor Jack Gallant displays videos and brain images used in his research. Video produced by Roxanne Makasdjian, Media Relations.

BERKELEY — Imagine tapping into the mind of a coma patient, or watching one's own dream on YouTube. With a cutting-edge blend of brain imaging and computer simulation, scientists at the University of California, Berkeley, are bringing these futuristic scenarios within reach.

Using functional Magnetic Resonance Imaging (fMRI) and computational models, UC Berkeley researchers have succeeded in decoding and reconstructing people's dynamic visual experiences – in this case, watching Hollywood movie trailers.

As yet, the technology can only reconstruct movie clips people have already viewed. However, the breakthrough paves the way for reproducing the movies inside our heads that no one else sees, such as dreams and memories, according to researchers.

Evolution into the Next Paradigm -

Existence sovereignty

Vision Reconstruction – The Science of Mind Reading

Vision reconstruction – UCTV.mp4



Vision Reconstruction – The Science of Mind Reading – UCTV.mp4

Evolution into the Next Paradigm -

Existence sovereignty

brain movie_reconstruction from human brain activity.mp4



brain movie_reconstruction from human brain activity.mp4

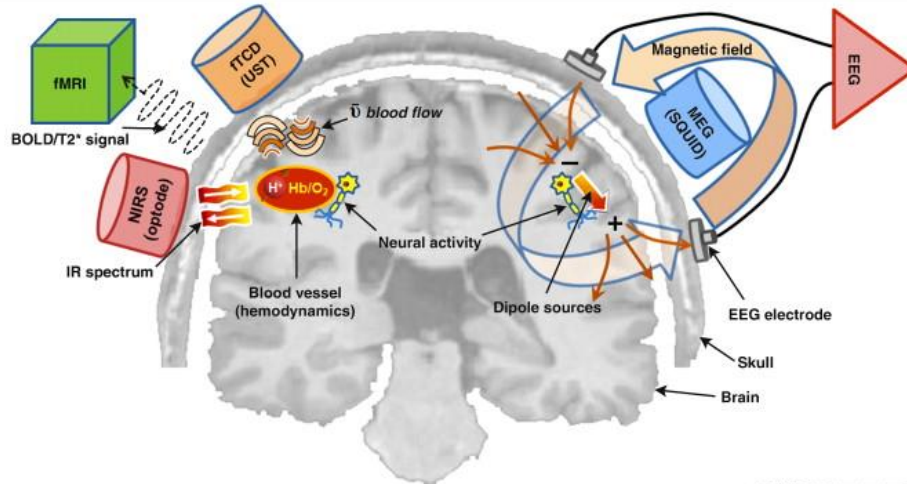
Evolution into the Next Paradigm -

Existence sovereignty

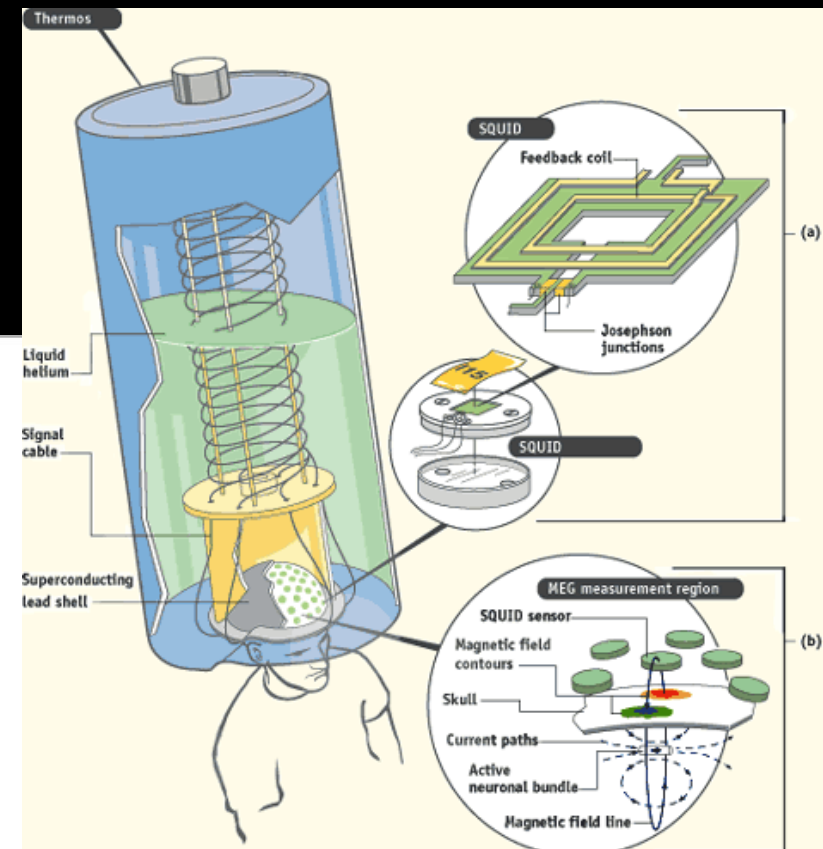
**Current vs. near future
neuroimaging technologies**

Functional Magnetic Resonance
Imaging – fMRI vs. SQUID

Super Conducting Quantum
Interference Device - SQUID



TRENDS in Biotechnology



Evolution into the Next Paradigm -

Existence sovereignty

**Current vs. near future
neuroimaging technologies**

Functional Magnetic Resonance
Imaging – FMRI vs. SQUID



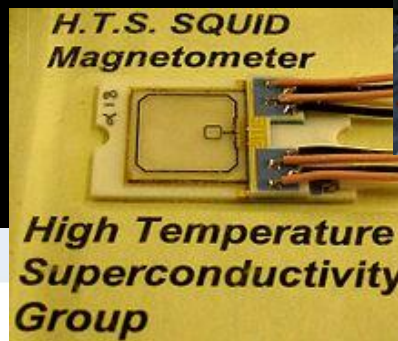
Super Conducting Quantum
Interference Device - SQUID



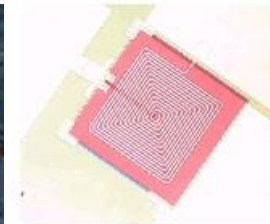
Evolution into the Next Paradigm -

Existence sovereignty

**Current vs. near future
neuroimaging technologies**



Super Conducting Quantum
Interference Device - SQUID



Superconductor Science and Technology

Superconductor Science and Technology > Volume 25 > Number 12

Planar SQUID magnetometer integrated with bootstrap circuitry under different bias modes

Yi Zhang^{1,5}, Chao Liu^{1,2,3,5}, Matthias Schmelz⁴, Hans-Joachim Krause^{1,5}, Alex I Braginski¹, Ronny Stolz⁴, Xiaoming Xie^{2,5}, Hans-Georg Meyer⁴, Andreas Offenhäuser^{1,5} and Mianheng Jiang^{2,5}

Show affiliations

Yi Zhang et al 2012 *Supercond. Sci. Technol.* **25** 125007. doi:10.1088/0953-2048/25/12/125007

Received 16 August 2012, in final form 28 September 2012. Published 19 October 2012.

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Abstract

A planar superconducting quantum interference device (SQUID) magnetometer consisting of a parallel gradiometer SQUID with integrated input coils connected to an on-chip pickup loop was designed and fabricated in conventional niobium technology. SQUID bootstrap circuitry (SBC) incorporating suitable current and voltage feedbacks was also integrated into the design. For a SQUID inductance of $L_S = 350$ pH and a chip size of 5×5 mm², the field resolution of the voltage-biased SQUID magnetometer reached < 5 fT Hz^{-1/2} with the bootstrap circuit and an ordinary preamplifier. We also observed that the effective McCumber parameter β_c of the junctions is influenced by the bias mode. Indeed, when the nominal junction β_c was larger than unity, our SQUID magnetometer operated stably in the voltage bias mode. The device exhibited low noise even without SBC.

Superconducting Quantum Interference Devices (SQUIDs)

Superconducting quantum interference devices (SQUIDs) are the most sensitive sensors for magnetic flux and magnetic field so far. They consist of a small superconducting ring (less than 1 mm in diameter), which is interrupted by one or two so-called Josephson junctions, which essentially act as a "weak" superconductor. Only a small current (on the order of microamps) can flow through such a weak link without dissipation. Above a certain current, the so-called critical current I_c , a voltage drop develops across the junction. A magnetic flux through the SQUID, induced by, e.g., an external magnetic field, alters the value of the critical current. Specifically, it changes the phase of the Cooper pair wave function across the junction(s).

Magnetoencephalography- MEG

Evolution into the Next Paradigm -

Searching for Room Temperature Superconductors

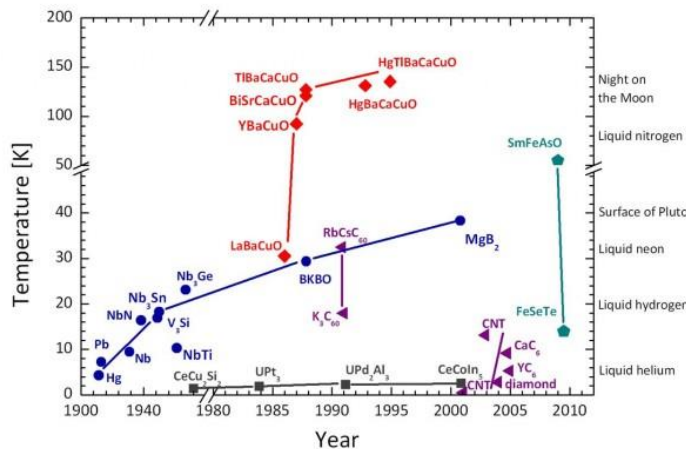
Version 44 from 16 February 2014

Dr. Frank Lichtenberg / Physicist

www.novam-research.com

This presentation can be downloaded as pdf via the following link:

www.novam-research.com/resources/Research_Project_Room_Temperature_Superconductors.pdf



Superconductivity – The presently highest T_c

Until now (January 2014) the highest established value of T_c is still – 135 °C. This is achieved by a copper (Cu)-based oxide with a layered crystal structure and complex chemical composition, namely $\text{Hg}_{0.8}\text{Tl}_{0.2}\text{Ba}_2\text{Ca}_2\text{Cu}_3\text{O}_{8+y}$, which was reported in 1995 by P. Dai et al. in *Physica C / Superconductivity* **243** (1995) 201 – 206.

Often unverified reports and rumors about materials with higher T_c. For example, www.superconductors.org present another Cu-based oxides with higher T_c values. Their currently (February 2014) highest T_c claim is +77 °C. However, the presented indications for superconductivity appear weak and therefore their T_c's do not represent established values.

The currently highest T_c's for materials without Cu:

- 220 °C by GdFeAsO_{1-y} . Its crystal structure is of ZrCuSiAs type and consists of alternating Fe – As and Gd – O layers.
Reference: J. Yang et al. in *Superconducting Science and Technology* **21** (2008) 1 – 3
- about – 180 °C in the system Na – W – O (see page 35)

Note: The most common units of temperature T are °C and K. They are related by the simple conversion formula $T [\text{K}] = T [^\circ\text{C}] + 273 \text{ K}$

12

Magnetoencephalography- MEG

Evolution into the Next Paradigm -



Brain fingerprinting classification concealed information test detects US Navy military medical information with P300

Lawrence A. Farwell^{1}, Drew C. Richardson², Graham M. Richardson³ and John J. Furedy⁴*

¹ Brain Fingerprinting Laboratories, Inc./Brain Fingerprinting, LLC, Seattle, WA, USA

² Federal Bureau of Investigation, FBI Laboratory, Quantico, VA, USA (at the time of the research)

³ Department of Cell and Developmental Biology, Vanderbilt University, Nashville, TN, USA

⁴ Department of Psychology, University of Toronto, Toronto, ON, Canada

ACKNOWLEDGMENTS

Funding was provided by the US Central Intelligence Agency (CIA), Contract No. 92-F138600-000. We are grateful to the US Navy and USUHS for providing subjects and facilities. We are grateful to Dr. Christine Furedy (York University) for assistance in editing the manuscript. Study design; collection, analysis, and interpretation of data; and writing of this report were undertaken solely by the authors. The views expressed herein are solely the views of the authors.

Neurological sovereignty >

Existence sovereignty

3/4/2019

Evolution into the Next Paradigm -

SUMMARY

We used the classification CIT to detect information gained by subjects in the course of real life. They gained the tested information in real-life events over a period of years before, and completely unrelated to, the experimental procedures. This was a specific screening or focused screening test, rather than a specific issue test. That is, rather than detecting information obtained at a particular place and time (such as while committing a crime), we detected information known to people with specific training, expertise, and organizational affiliation, specifically knowledge of military medicine by US Navy military medical experts. Subjects obtained this knowledge through a variety of experiences at different times and places for different individuals.

The results of this study, together with the results of similar studies such as the FBI agent study and the bomb-maker study of Farwell et al. (2013), suggest that the classification CIT methods specified here, when the full P300 + LNP epoch is employed in data analysis, can be used effectively in specific screening tests to detect knowledge characteristic of individuals with specific training, expertise, and/or affiliation with a particular agency or organization. In our current study, this was accomplished in a specific screening test under controlled conditions, with the limitations inherent thereto. Prior research has applied these same methods in field conditions in a specific issue test in investigating actual crimes, with the concomitant complications related to motivation, emotions, logistics, experimental control, and other uncontrollable factors. Taken together with previous successful field applications in real-world criminal investigations, our results suggest that these methods may have application in both national security and law enforcement, for instance in identifying trained terrorists, bomb makers, members of a terrorist cell, hostile intelligence agents, members of an organized crime organization, and others with specific knowledge, expertise, training, and/or affiliations of interest.

Neurological sovereignty >

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Evolution into the Next Paradigm -

The P300 (P3) wave is an event related potential (ERP) component elicited in the process of decision making. It is considered to be an endogenous potential, as its occurrence links not to the physical attributes of a stimulus, but to a person's reaction to it. More specifically, the P300 is thought to reflect processes involved in stimulus evaluation or categorization. It is usually elicited using the oddball paradigm, in which low-probability target items are mixed with high-probability non-target (or "standard") items.

When recorded by electroencephalography (EEG), it surfaces as a positive deflection in voltage with a latency (delay between stimulus and response) of roughly 250 to 500 ms.[1] The signal is typically measured most strongly by the electrodes covering the parietal lobe. The presence, magnitude, topography and timing of this signal are often used as metrics of cognitive function in decision making processes.

Neurological sovereignty >

Existence sovereignty

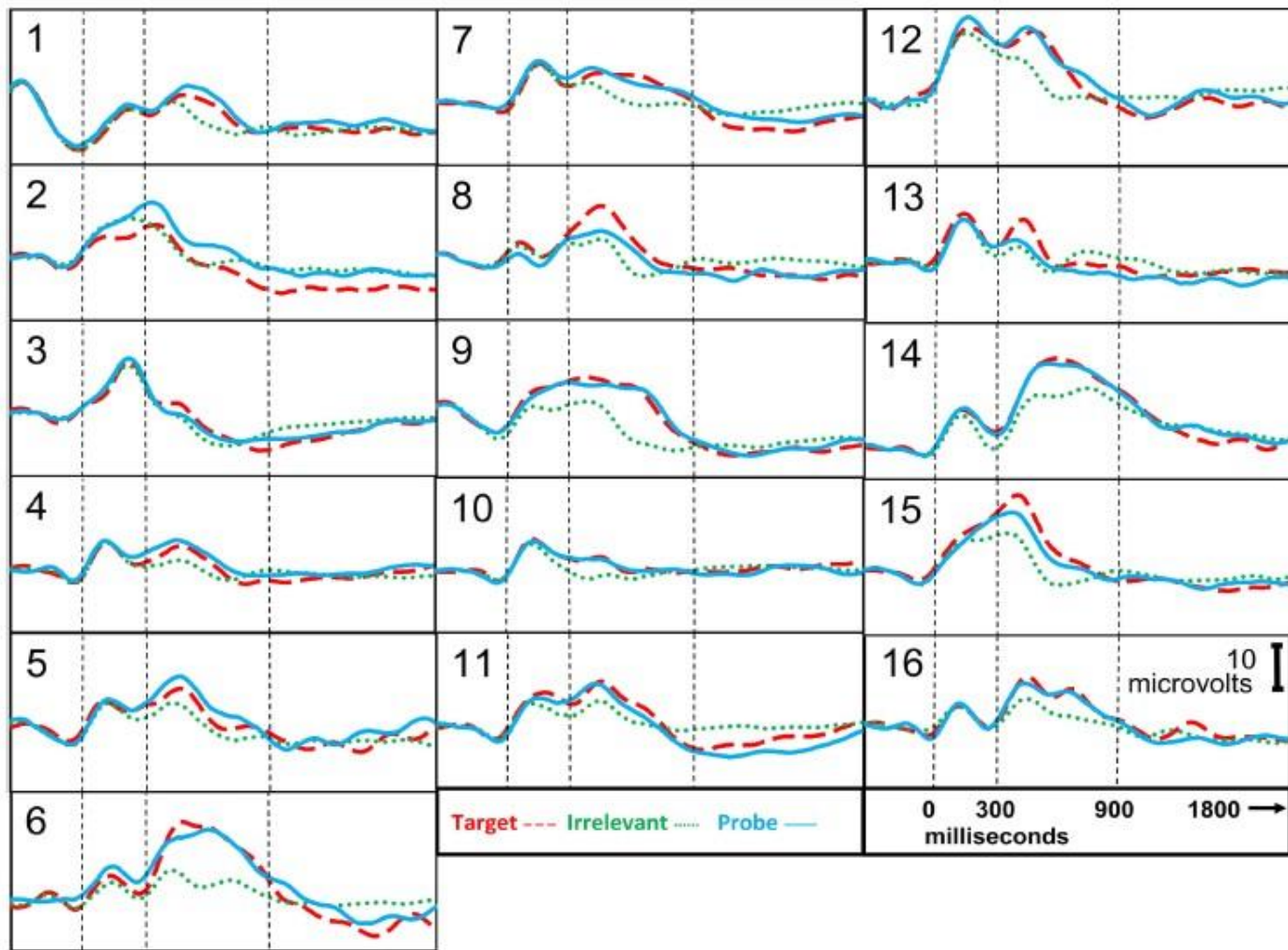


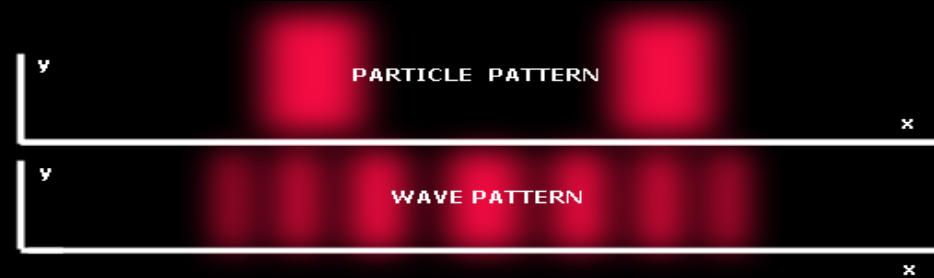
FIGURE 3 | ERP responses, information-present subjects. Stimulus onset is at 0 ms. P300 epoch is 300–900 ms. P300 + LNP epoch is 300–1800 ms.

Neurological sovereignty >

Existence sovereignty

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Things and concepts presented :



Are we ready . . . ?

Experiments and data

Current and emergent technologies

Intersection of quantum physics and biophysics

Implications of an Emergent Evolutionary Eventhorizon



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Things and concepts presented :

Femtosecond laser-driven imaging approach promising for bioimaging, biomedicine

07/03/2014

Posted by Lee Dubay

Associate Editor, BioOptics World

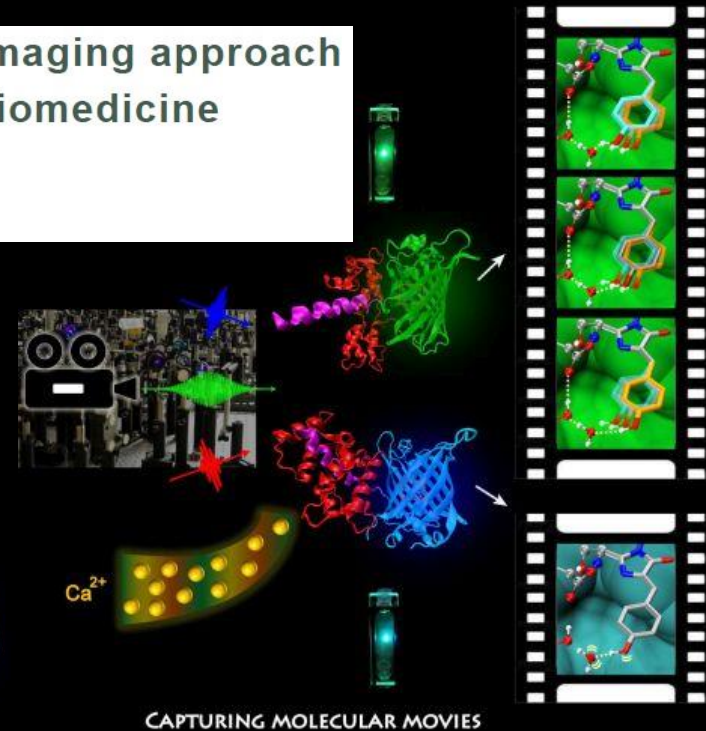
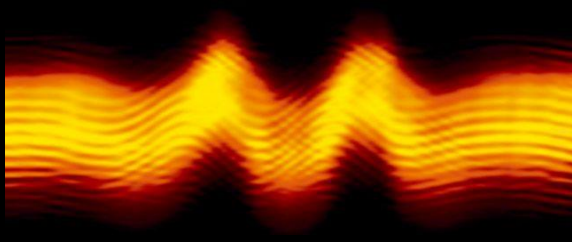
Are we ready . . . ?

Experiments and data

Current and emergent technologies

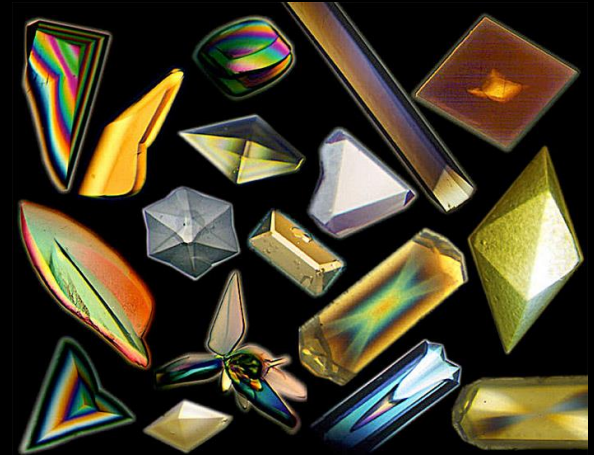
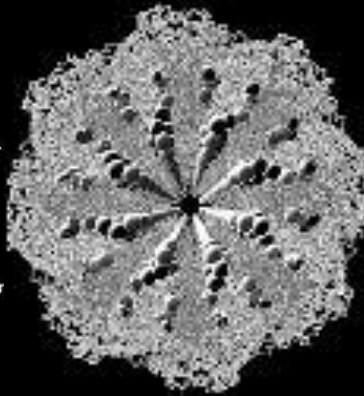
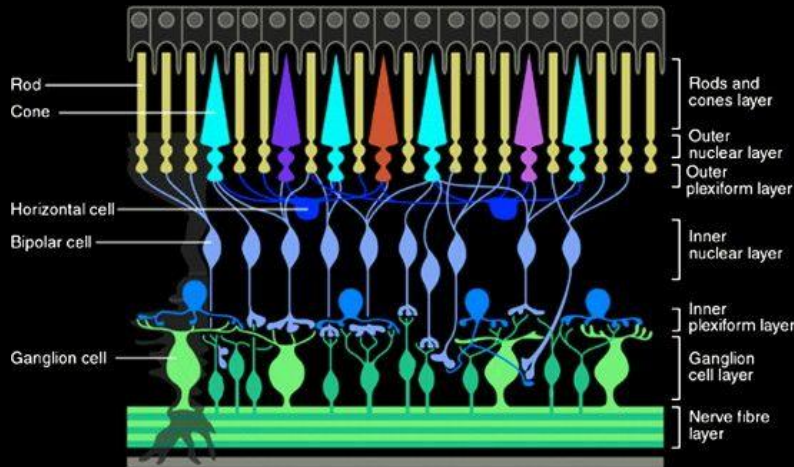
Intersection of quantum physics and biophysics

Implications of an Emergent Evolutionary Eventhorizon



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Things and concepts presented :



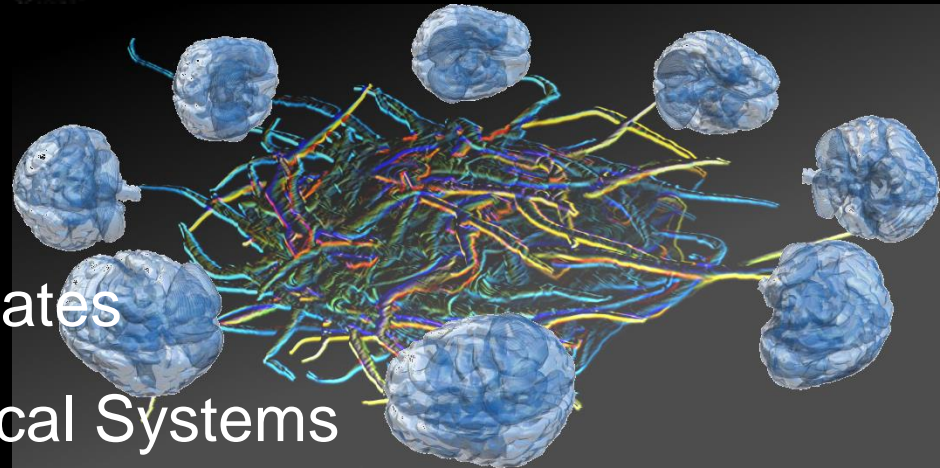
Are we ready . . . ?

Behavioral Epigenetics

N-Dimensional Cognition Templates

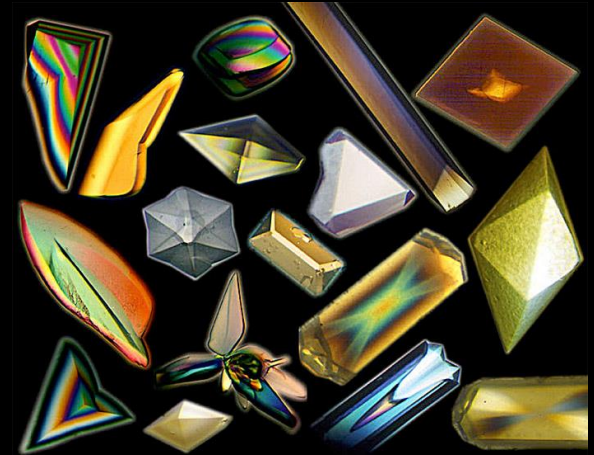
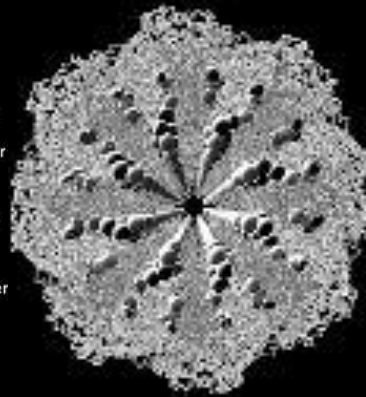
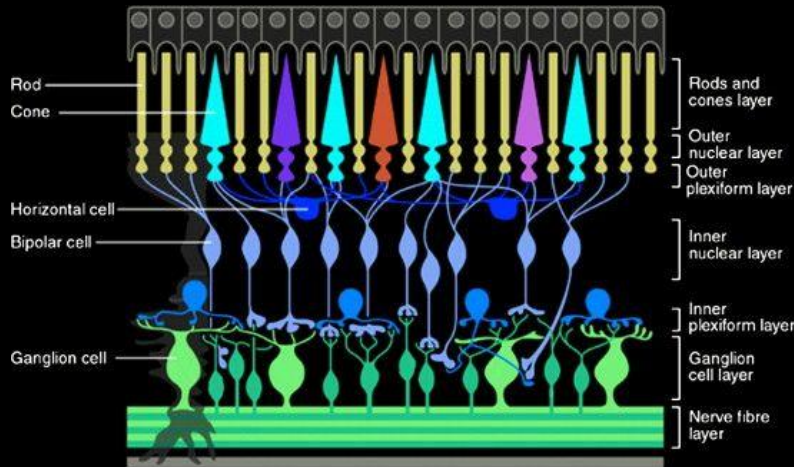
Quantum Dynamics in Biophysical Systems

Implications of an Emergent Evolutionary Eventhorizon



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

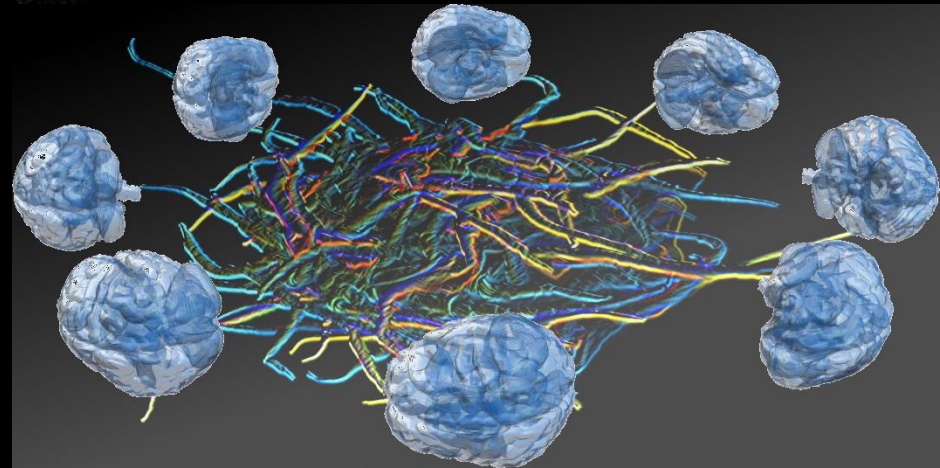
Things and concepts presented :



Ready for what . . . ?

Transparency of Intent -

Be careful what you ask for



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Things and concepts presented :



Ready for what . . . ?

Transparency of Intent -

Be careful what you ask for

INTENTION



Transparency of intentions is the Next Big Thing

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Things and concepts presented :

Philos Stud
DOI 10.1007/s11098-014-0363-3

The transparency of intention

Sarah K. Paul

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Abstract The attitude of intention is not usually the primary focus in philosophical work on self-knowledge. A recent exception is the so-called “Transparency” theory of self-knowledge, which attempts to explain how we know our own minds by appeal to reflection on non-mental facts. Transparency theories are attractive in light of their relative psychological economy compared to views that must posit a dedicated mechanism of ‘inner sense’. However, it is argued here, focusing on proposals by Richard Moran and Alex Byrne, that the Transparency approach to explaining knowledge of our intentions fails. Considerations of economy therefore recommend an alternative approach: the Rylean Theory Theory. The particular view defended here is that one way of coming to know what we intend is to self-ascribe an intention on the basis of making a conscious decision about what to do. This view requires that there are such things as conscious decisions, and so the existence of conscious decisions is defended against skeptical worries raised by Peter Carruthers. The conclusion is that we know of our intentions by theorizing about ourselves, but that this knowledge can still be first-personally privileged, authoritative, and non-alienated.

Keywords Self-knowledge · Transparency · Decision · Intention · Theory Theory

Ready for what . . . ?

Transparency of Intent -

Be careful what you ask for

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Ready for what . . . ?

Transparency of Intent -

Be careful what you ask for

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Things and concepts presented :

PETER CARRUTHERS

The Opacity of Mind: An Integrative Theory of Self-Knowledge

Peter Carruthers, *The Opacity of Mind: An Integrative Theory of Self-Knowledge*, Oxford University Press, 2011, 437pp., \$55.00 (hbk), ISBN 9780199596195.

Reviewed by Alex Byrne, Massachusetts Institute of Technology

With respect to self-knowledge, Carruthers is Ryle's heir. On his Interpretive Sensory-Access (ISA) theory, our "self-knowledge abilities . . . result merely from turning our mindreading capacities on ourselves" (5). Our access to our own minds "is no different in principle from our access to the mental states of other people" (1).

On Ryle's view, sometimes self-knowledge is easier to obtain than knowledge of the mental states of others, but not always:

A residual difference in the supplies of the requisite data make some differences in degree between what I can know about myself and what I can know about you, but these differences are not all in favor of self-knowledge. In certain quite important respects it is easier for me to find out what I want to know about you than it is for me to find out the same sorts of things about myself. In certain other respects it is harder. (Ryle 1949: 155-6)

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

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Pieces of a Complex Puzzle – Ghost in the Machine

Things and concepts presented :

Ryle contends that “official doctrine” of mind is unsound and contradicts virtually everything we know about human mentality. –

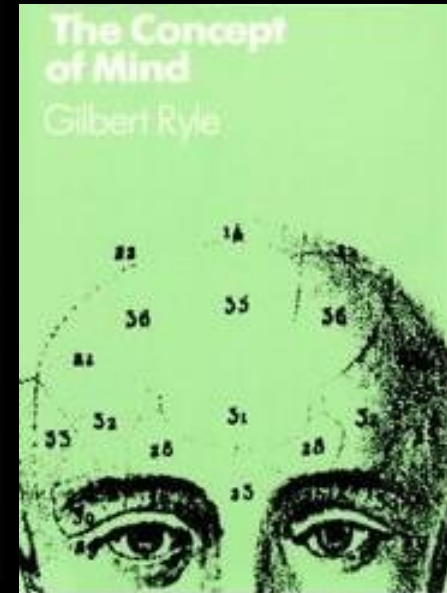
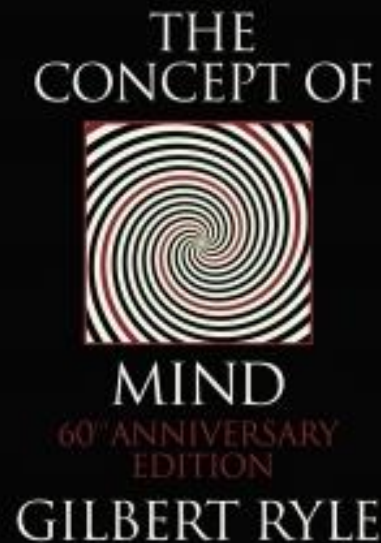
Every human being has both a mind and a body, that these two are coordinated . . .

. . . outside the body the mind may continue to exist and exert its powers.

Ready for what . . . ?

Transparency of Intent -

Be careful what you ask for



Pieces of a Complex Puzzle – Cosmic Embryogenesis (in Three Easy Steps)

Geosphere/Geogenesis

(Chemical Substrate)

Biosphere/Biogenesis

(Biological-Genetic Substrate)

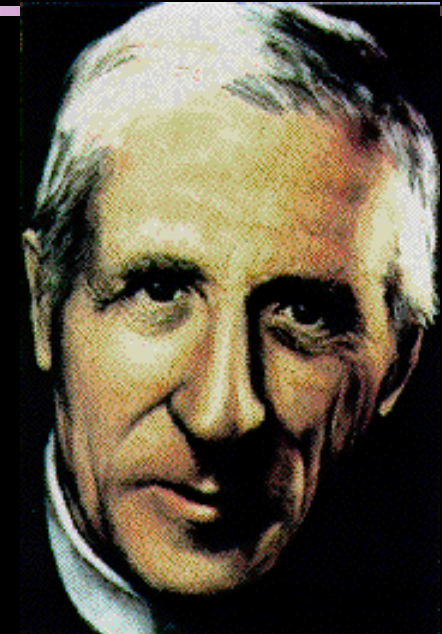
Noosphere/Noogenesis

(Memetic-Technologic Substrate)

Ready for what . . . ?

Transparency of Intent -

Be careful what you ask for



**Pierre Teilhard de Chardin
(1881-1955)**

**Jesuit Priest, Transhumanist,
Developmental Systems Theorist**

Le Phénomène Humain, 1955



Pieces of a Complex Puzzle – De Chardin on Acceleration: Technological “Cephalization” of Earth



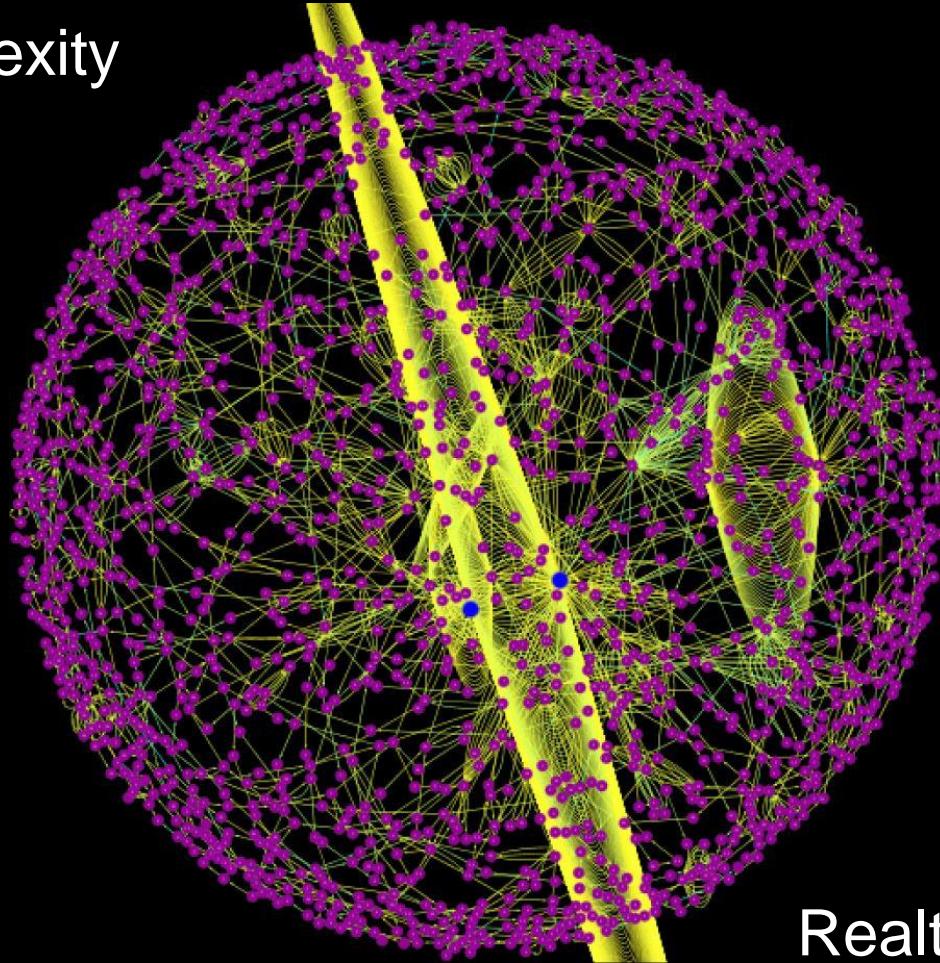
"No one can deny that a network (a world network) of economic and psychic affiliations is being woven at ever increasing speed which envelops and constantly penetrates more deeply within each of us.

With every day that passes it becomes a little more impossible for us to act or think otherwise than collectively."

**"Finite Sphericity + Acceleration =
Phase Transition"**

Evolution into the Next Paradigm -

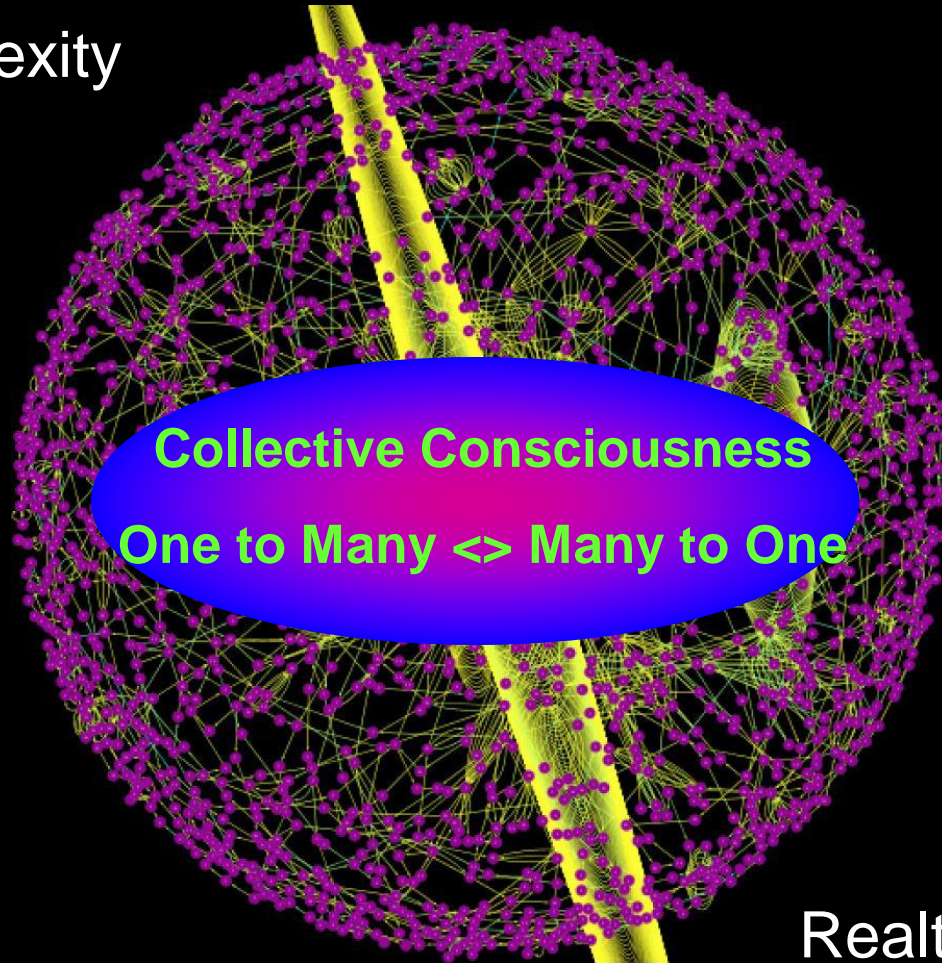
Hyper complexity



Realtime connectivity

Evolution into the Next Paradigm -

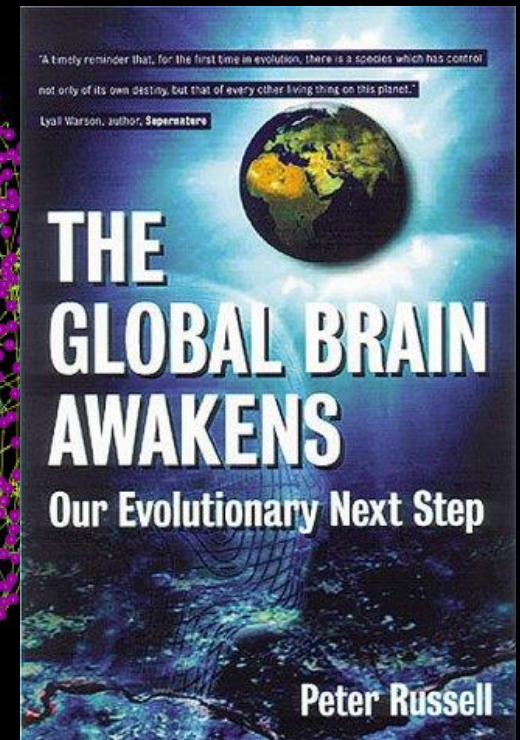
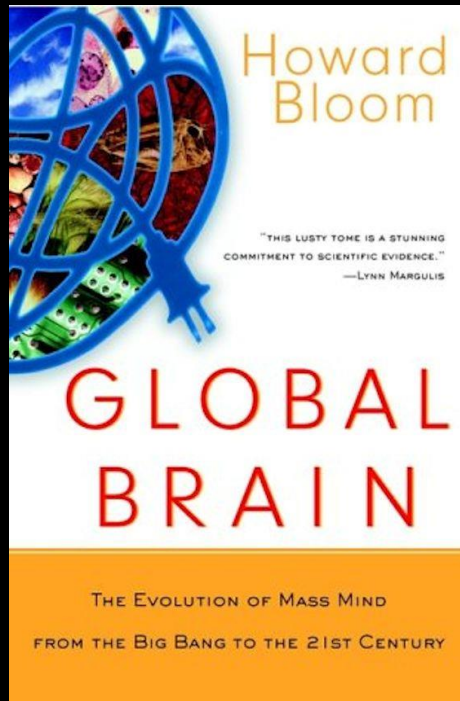
Hyper complexity



Realtime connectivity

Evolution into the Next Paradigm -

Hyper complexity



Realtime connectivity

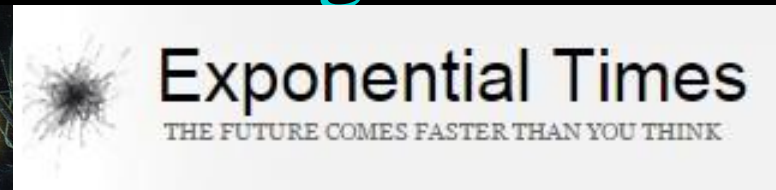
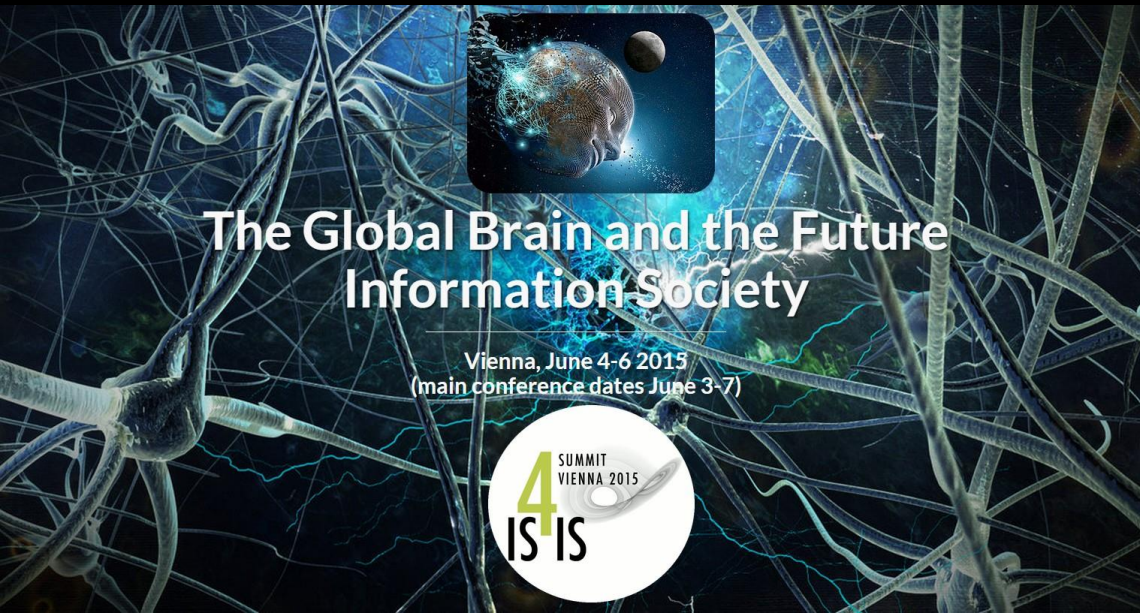
Evolution into the Next Paradigm -

Hyper complexity

Collective Consciousness
One to Many <> Many to One

Realtime connectivity

Evolution into the Next Paradigm -



Collective Intelligence 2015

May 31 - June 2, 2015 @ the Marriott Santa Clara in Santa Clara, CA

Welcome to the 2015 Collective Intelligence Conference

The annual interdisciplinary conference that brings together researchers from the academy, businesses, non profits, governments and the world at large to share insights and ideas from a variety of fields relevant to understanding and designing collective intelligence in its many forms.

Evolution into the Next Paradigm -



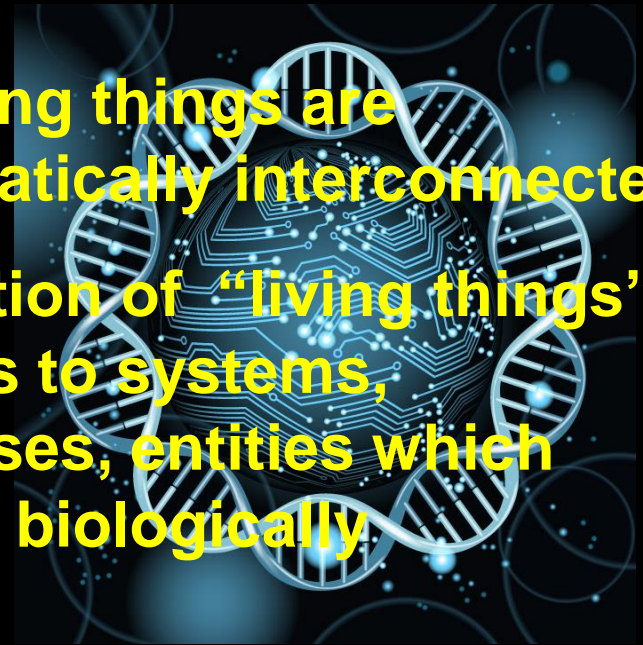
The Global Brain and the Future Information Society

Vienna, June 4-6 2015
(main conference dates June 3-7)



Exponential Times
THE FUTURE COMES FASTER THAN YOU THINK

- All living things are systematically interconnected
- Definition of “living things” extends to systems, processes, entities which behave biologically.



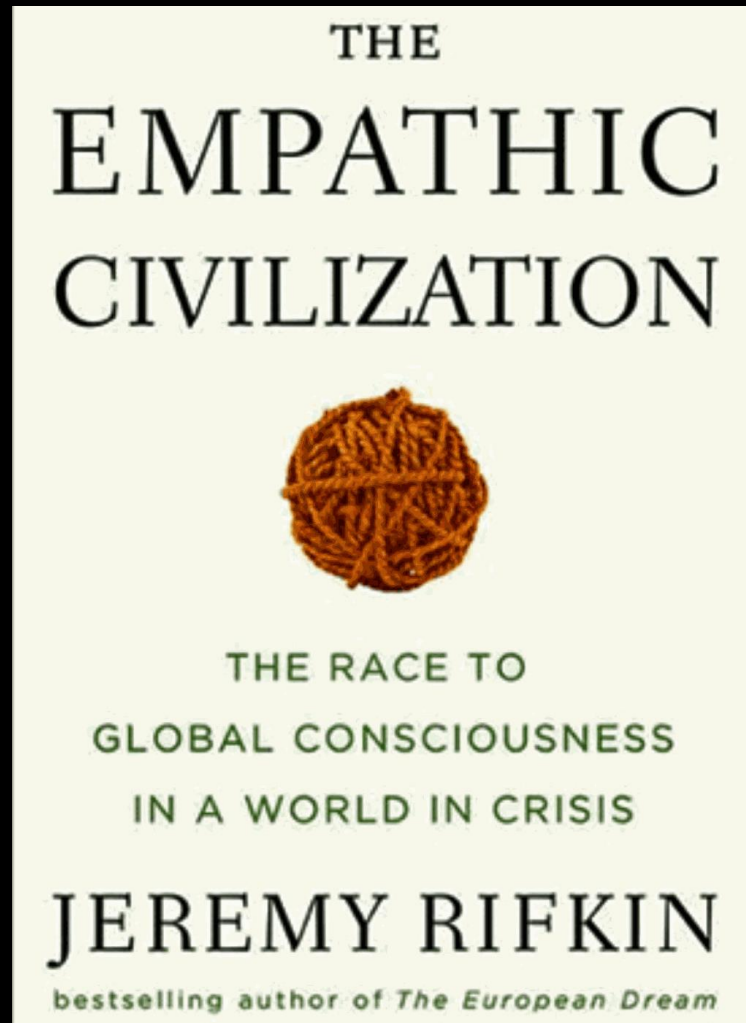
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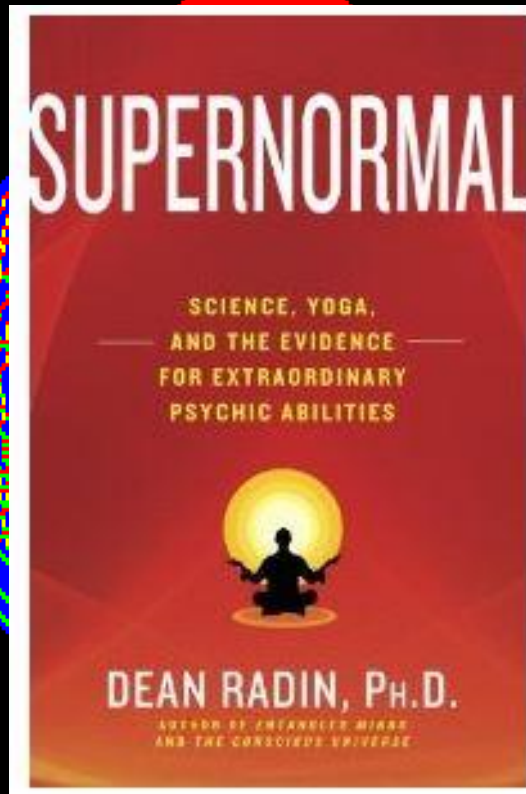
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Evolution into the Next Paradigm -



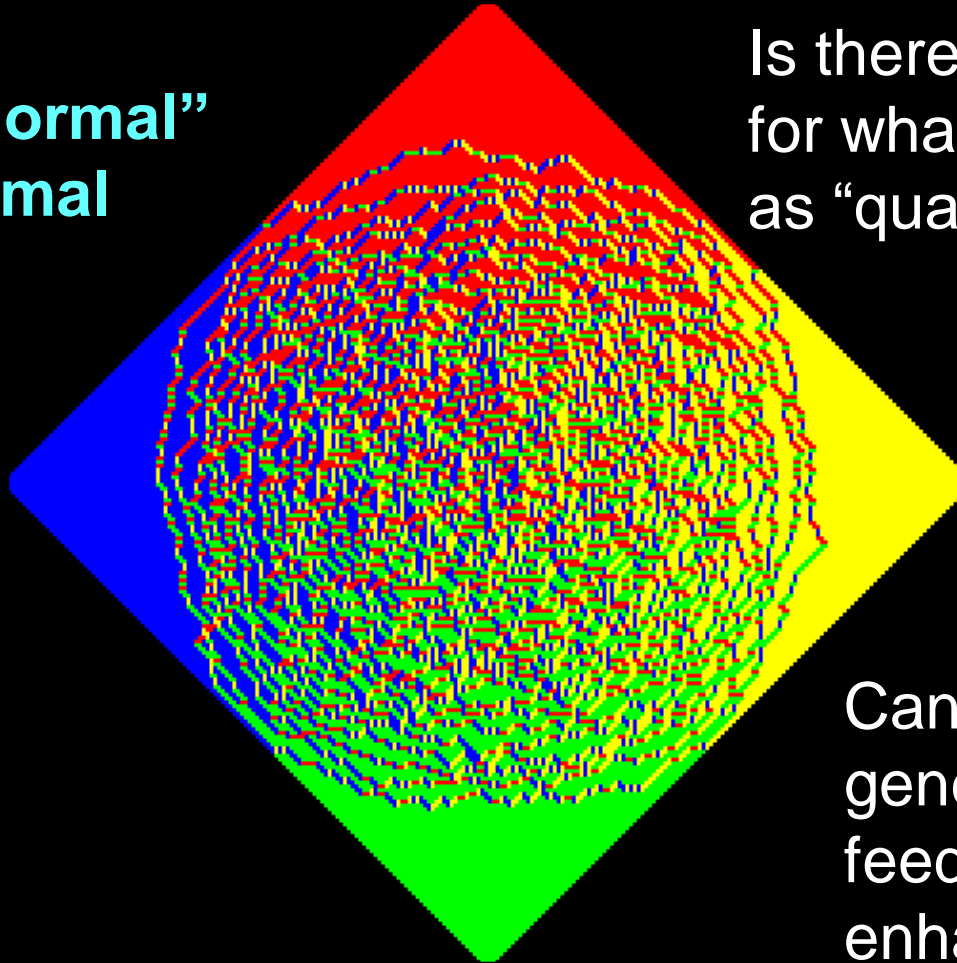
Evolution into the Next Paradigm -

The new “normal”
> Supernormal



Evolution into the Next Paradigm -

**The new “normal”
> Supernormal**



Is there a genetic marker for what might be termed as “quantum cognition”?


Can behavioral epigenetics function as feedback amplifier for enhanced quantum cognition?

Evolution into the Next Paradigm -

The new “normal”
> Supernormal

So-called “smart gene” is not a single genetic marker, but rather an amalgam of genetic factors which translate into an enhanced form of cognition – 1/5 of general population.

3/4/2019



Proceedings of the National Academy of Sciences of the United States of America www.pnas.org

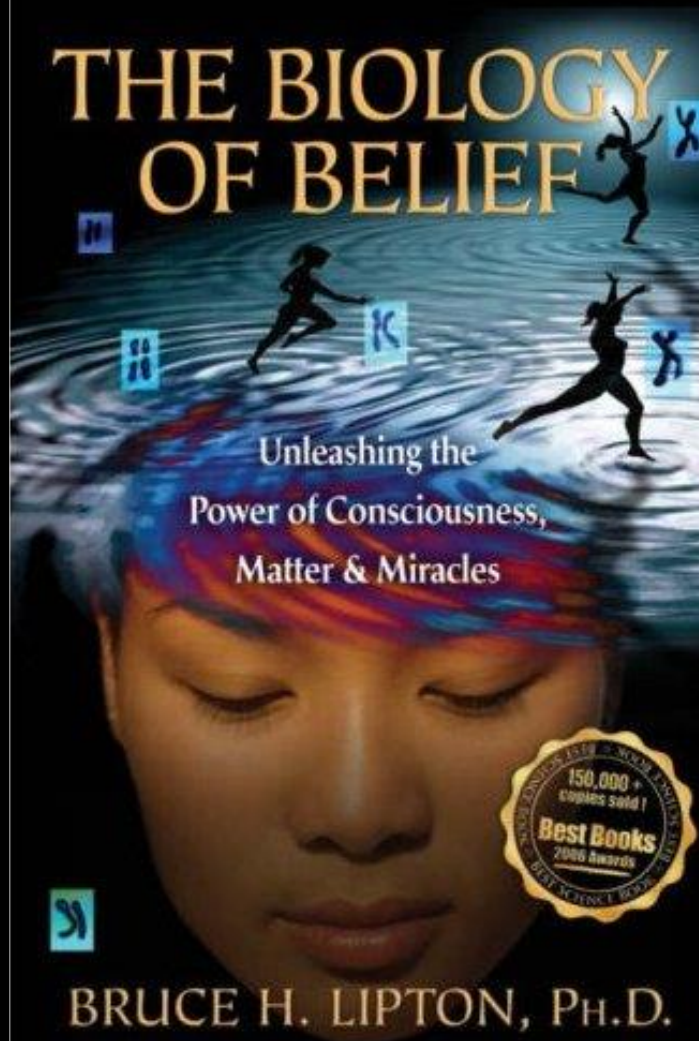
Common genetic variants associated with cognitive performance identified using the proxy-phenotype method

Abstract

We identify common genetic variants associated with cognitive performance using a two-stage approach, which we call the proxy-phenotype method. First, we conduct a genome-wide association study of educational attainment in a large sample ($n = 106,736$), which produces a set of 69 education-associated SNPs. Second, using independent samples ($n = 24,189$), we measure the association of these education-associated SNPs with cognitive performance. Three SNPs (rs1487441, rs7923609, and rs2721173) are significantly associated with cognitive performance after correction for multiple hypothesis testing. In an independent sample of older Americans ($n = 8,652$), we also show that a polygenic score derived from the education-associated SNPs is associated with memory and absence of dementia. Convergent evidence from a set of bioinformatics analyses implicates four specific genes (*KNCMA1*, *NRXN1*, *POU2F3*, and *SCRT*). All of these genes are associated with a particular neurotransmitter pathway involved in synaptic plasticity, the main cellular mechanism for learning and memory.

Edited by Michael S. Gazzaniga, University of California, Santa Barbara, CA, and approved August 14, 2014 (received for review March 12, 2014)

The Biology of Belief

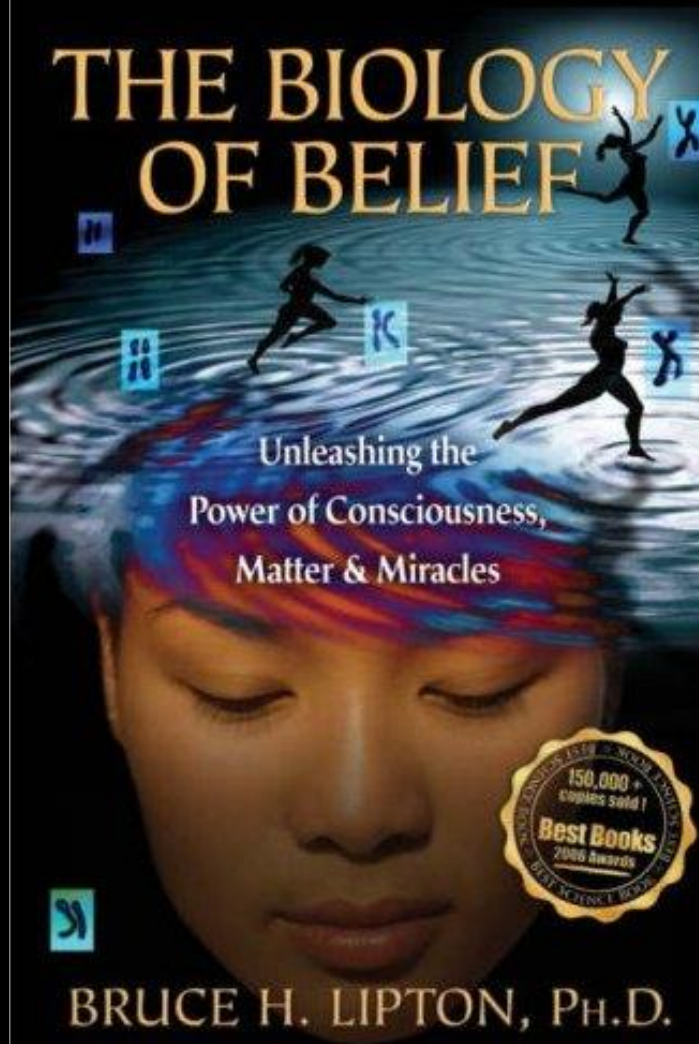


Dr. Bruce Lipton is a former medical school professor and research scientist.

His experiments, and that of other leading edge scientists, have examined in great detail the processes by which cells receive information. The implications of this research radically change our understanding of life.

It shows that genes and DNA do not control our biology; that instead DNA is controlled by signals from outside the cell, including the energetic messages emanating from our positive and negative thoughts.

The Biology of Belief



Dr. Bruce Lipton is a former medical school professor and research scientist.

His experiments, and that of other leading edge scientists, have examined in great detail the processes by which cells receive information. The implications of this research radically change our understanding of life.

It shows that genes and DNA do not control our biology; that instead DNA is controlled by signals from outside the cell, including the energetic messages emanating from our positive and negative thoughts.

Define “existence”



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Present

BEHAVIORAL EPIGENETICS

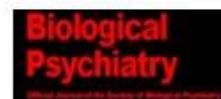
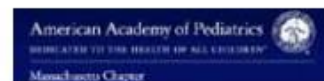


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VOLUME 4, NUMBER 6

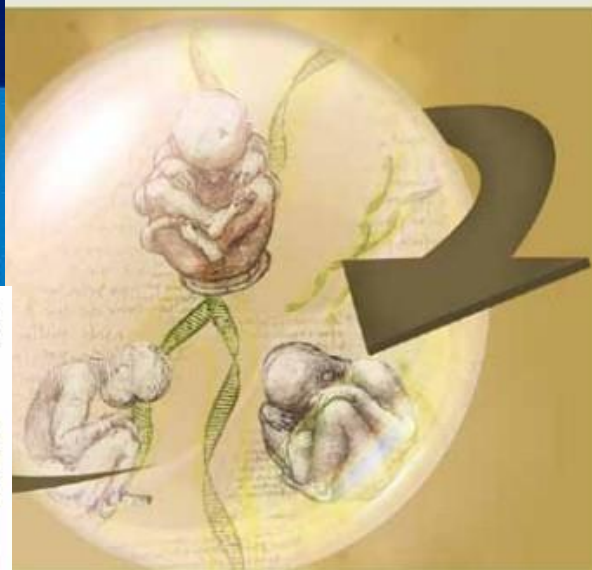
September 2013
1525-3654 (ISSN)
1525-3654 (CODEN)

BEHAVIOR GENETICS

An International Journal Devoted to Research
in the Inheritance of Behavior

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VERSITA

Review Article • DOI 10.2478/s13380-012-0024-y • Translational Neuroscience • 2012 • 2012 • 198-213

Translational Neuroscience

EPIGENETIC EPIDEMIOLOGY IN PSYCHIATRY: A TRANSLATIONAL NEUROSCIENCE PERSPECTIVE

Ehsan Pothos,
Gunter Kenis,
Klaus P. Lesch,
Jos Prickaerts,
Harry M. Steinbusch,
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of Psychiatry, London, United Kingdom

Received 15 May 2012
accepted 15 May 2012

Abstract

Accumulating evidence from the field of neuroscience indicates a crucial role for epigenetic regulation of gene expression in development and aging of nervous system and suggests that aberrations in the epigenetic machinery are involved in the etiology of psychiatric disorders. Epidemiologic evidence on epigenetics in psychiatry, however, is currently very sparsely available, but is consistent with a mediating role for epigenetic mechanisms in bringing together inherited and acquired risk factors into a neurodevelopmental etiological model of psychiatric disorders. Here, we review evidence from the epidemiological and neuroscience literature, and aim to converge the evidence into an etiological model of psychiatric disorders that encompasses environmental, genetic and epigenetic contributions. Given the dynamic nature of the epigenetic machinery and the potential reversibility of epigenetic modifications, future well-designed interdisciplinary and translational studies will be of key importance in order to identify new targets for prevention and therapeutic strategies.

This article is adapted from the book Chapter "Epigenetic Epidemiology", by Bart P. Rutten & Jim van Os in the book "Epigenetic Epidemiology", published by Springer Science + Business Media B.V., Editor Karin E. Michels, 2012, page 343-376. ISBN 978-94-007-2494-5, e-ISBN 978-94-007-2495-2, DOI 10.1007/978-94-007-2495-2. With kind permission from Springer Science+Business Media B.V.

Keywords

• Epidemiology • Epigenetics • Psychiatric disorders • Translational neuroscience

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Introduction

Various environmental and genetic factors interact in complex manners throughout an individual's life to contribute to psychiatric disorders. Studies on the environmental and genetic epidemiology of psychiatric diseases have taken important steps forward in estimating heritability rates and identifying associations between a range of environmental and genetic factors in psychiatric phenotypes. Recent exciting developments in the field of epigenetics and neuroscience suggest that epigenetic mechanisms may mediate sustainable effects of environmental exposures and have profound roles in neurodevelopment and aging of the brain. These ideas have generated great interest within many research disciplines, including psychiatric epidemiology. The "seductive allure of behavioral epigenetics" [1] has prompted psychiatric epidemiologists to focus on direct and indirect evidence for epigenetic involvement in mental health

and normal behavior as well as in abnormal behavior and complex psychiatric disorders, in an attempt to elucidate the role of epigenetic mechanisms and possibly identify new strategies for prevention and treatment of psychiatric disorders [2]. Without attempting to provide a complete overview, this review addresses the current status of the literature on evidence indicative of involvement of epigenetic mechanisms in psychiatric disorders. The current article starts with a summary of the evidence from the field of molecular and cellular neuroscience for a role of epigenetic mechanisms in development and aging of the brain and its functional abilities. Next, we exemplify that aberrant epigenetic mechanisms are linked to neuropsychiatric phenotypes by briefly describing psychiatric consequences of classical syndromes of genetic imprinting in humans. Thereafter, we summarize general epidemiologic findings that are indicative of epigenetic involvement in psychiatric disorders and review the

more direct epidemiologic evidence (i.e. differential epigenetic profiles) for epigenetic involvement in the most prevalent and severe psychiatric illnesses. We will end the article by discussing current research challenges in epigenetic epidemiology and neuroscience, and we propose that more studies combining epidemiological and neuroscience approaches in studying epigenetics are needed to improve our understanding of the role of the epigenetic machinery in the etiologies of psychiatric disorders.

Epigenetic mechanisms

DNA methylation

DNA methylation involves addition of a methyl group from S-adenosyl methionine (SAM) to CpG units, i.e. regions of DNA where a cytosine (C) nucleotide occurs next to a guanine (G) nucleotide in the linear sequence of bases. The methylation of CpG sites, overrepresented in CpG islands in the promoter regulatory

* E-mail: b.rutten@maastrichtuniversity.nl

Define “existence”

Epigenetics and Human Health

Arturas Petronis
Jonathan Mill *Editors*

Brain, Behavior and Epigenetics

 Springer

Epigenomics

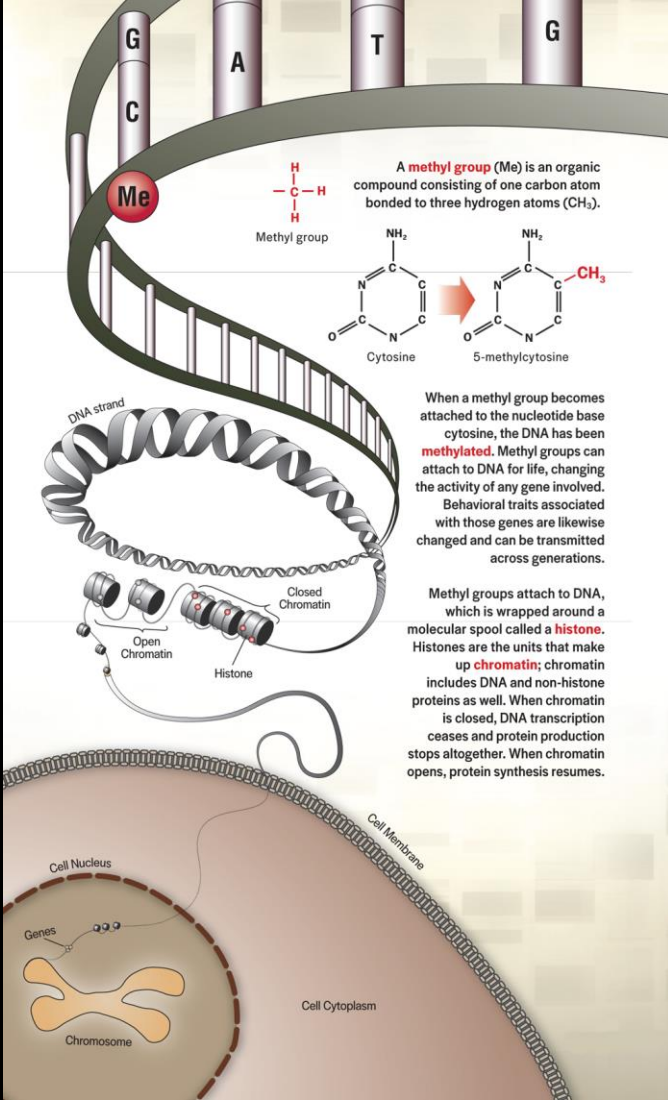
From Chromatin Biology to Therapeutics

EDITED BY
KRISHNARAO APPASANI

CAMBRIDGE

EPIGENETICS 101

One form of epigenetic change occurs when molecular structures like methyl groups attach to genes, altering their expression. The abundance of methyl groups can be increased or decreased by infection, environmental exposure or life experience.



3/4/2019

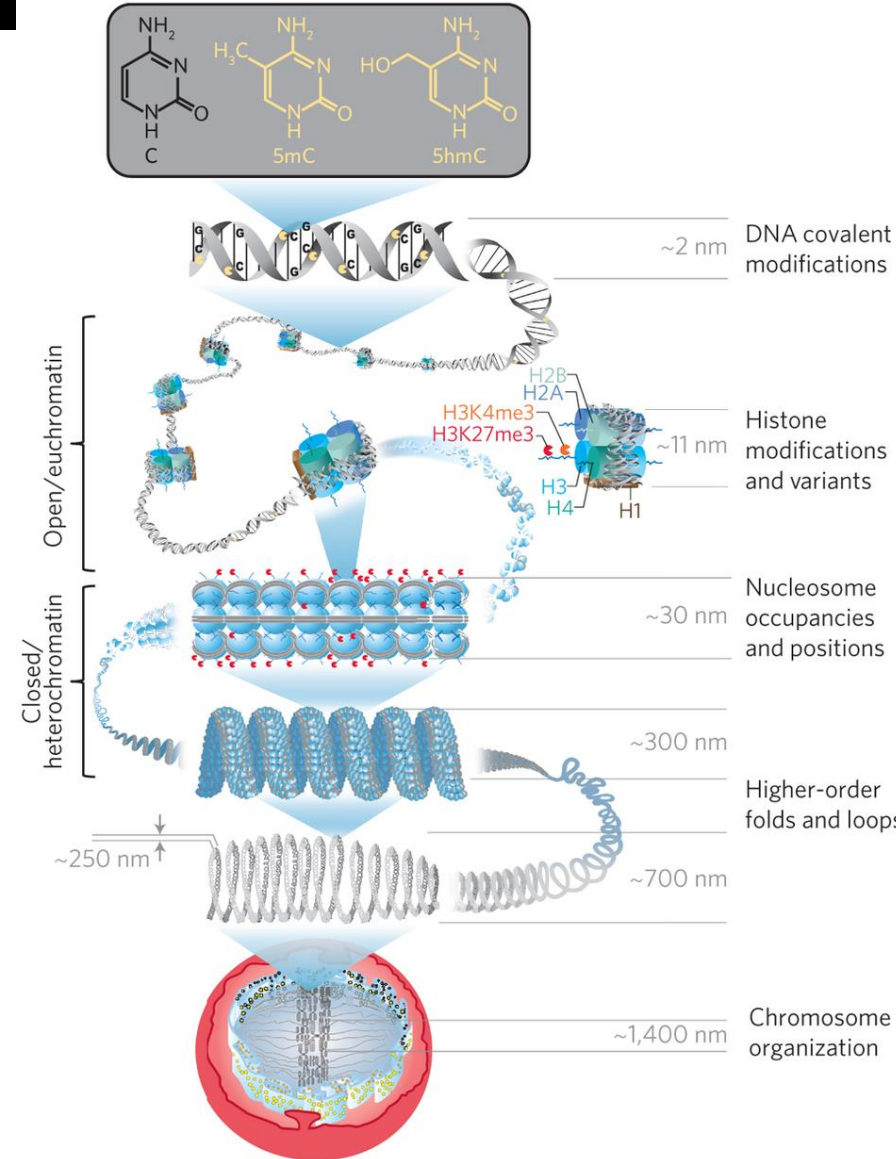
Define “existence”

Chapter 1 Posttranslational Histone Modifications and the Neurobiology of Psychosis

Schahram Akbarian, Iris Cheung, Caroline Connor, Mira Jakovcevski,
and Yan Jiang

Abstract Schizophrenia and related major psychiatric disease is typically defined by the conspicuous absence of a defining neuropathology and a lack of straightforward identifiable genetic factors in the majority of affected individuals. On the other hand, there is increasing evidence that a distinct set of RNAs, many of which encode proteins of critical importance for myelin regulation and oligodendrocyte function, or GABAergic inhibitory and glutamatergic excitatory neurotransmission are expressed at altered levels in diseased brain. This chapter explores the mechanisms by which epigenetic regulators of gene expression, including covalent histone modifications, could contribute to dysregulation of gene expression in schizophrenia. There is also discussion on the methodological and scientific limitations of histone-focused approaches, as it pertains to the human (postmortem) brain, as well as brief remarks on the topic of epigenetic heritability of chromatin structures potentially altered in schizophrenia. The authors predict that the study of histone modifications, both at defined candidate gene loci and genome-wide, will become an important tool in the investigation of gene expression abnormalities and potential epigenetic dysregulation in the brains of subjects on the psychosis spectrum.

Keywords Epigenetics · Heritability · Histone code · Nucleosome · Schizophrenia · Transcriptional regulation



Define “existence”

BioTechniques

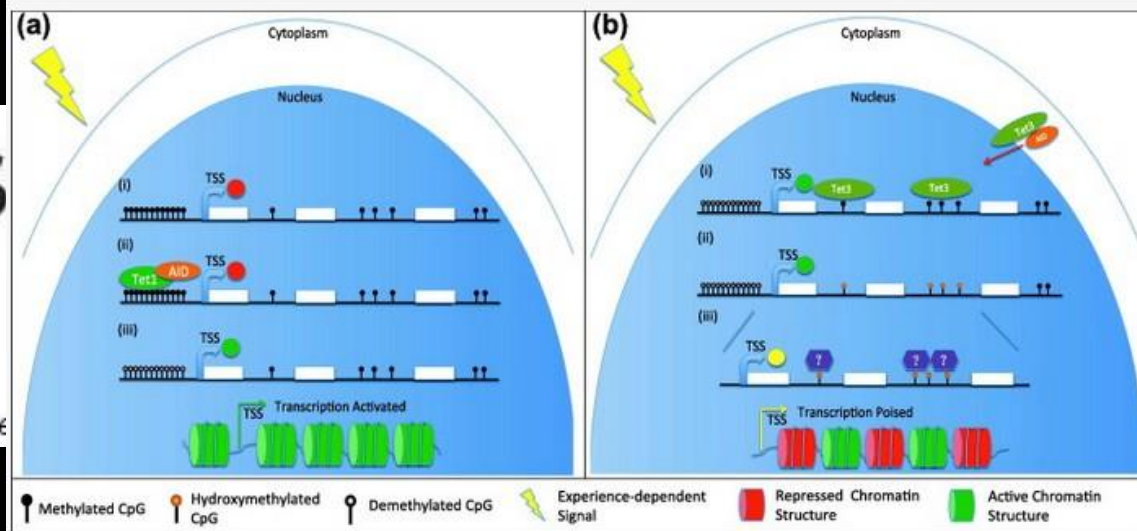
The International Journal of Life Science Methods

The Brain Genome Conquers Fear

11/18/2014

Janelle Weaver, Ph.D.

Can epigenetic gene regulatory mechanisms overcome



Hypothetical model of Tet-mediated 5-hmC priming of experience-dependent gene expression (1)

“This study has shed new light on how the neuronal genome adapts to emotional events,” said senior study author Timothy Bredy of the University of Queensland. “Studying this kind of learning may lead to a better understanding of how fear memory is stored in our brain and how fear extinction can control traumatic memories.”

The study revealed a key role for Tet3, which belongs to a family of enzymes that regulates gene activity through DNA demethylation. Tet3 activity can create 5-hydroxymethylcytosine (5-hmC), which is abundant in the adult brain, is regulated by neural activity, and accumulates across the lifespan. But until now, the functional role of this change in 5-hmC not been entirely clear, and whether it is necessary for behavioral adaptation has remained an open question.

Bredy and his team examined the role of Tet3 and 5-hmC in fear extinction. First, they repeatedly exposed mice to white noise paired with a foot shock so that the animals would later freeze in fear upon hearing the noise by itself. To reduce this freezing response through fear extinction training, the researchers later repeatedly exposed a subset of these mice to the same sound without delivering the foot shock.

Using 5-hmC capture and high-throughput DNA sequencing on individual mice, they found that fear extinction led to a dramatic genome-wide redistribution of 5-hmC within the infralimbic prefrontal cortex—a brain region known to play a role in fear extinction. They also found that Tet3 mRNA expression was critical for the rapid behavioral adaptation. Moreover, fear extinction led to the Tet3-induced accumulation of 5-hmC and related chromatin modifications that enhance gene expression and adaptive behavioral responses.

“Previously, we thought that DNA modifications should be fixed in order to maintain the unique characteristics of each cell type, and this is the reason why cells from the heart are different from the cells in the brain,” Bredy said. “However, the significant redistribution of 5-hmC after fear extinction totally changed our conception of the neuronal genome.”

Reference

Li X, Wei W, Zhao QY, Widagdo J, Baker-Andresen D, Flavell CR, D'Alessio A, Zhang Y, Bredy TW. Neocortical Tet3-mediated accumulation of 5-hydroxymethylcytosine promotes rapid behavioral adaptation. Proc Natl Acad Sci U S A. 2014 Apr 22. doi: 10.1073/pnas.1318906111

Define “existence”

Genetic Influences on Political Ideologies: Twin Analyses of 19 Measures of Political Ideologies from Five Democracies and Genome-Wide Findings from Three Populations

Peter K. Hatemi · Sarah E. Medland · Robert Klemmensen · Sven Oskarsson · Levente Littvay · Christopher T. Dawes · Brad Verhulst · Rose McDermott · Asbjørn Sonne Nørgaard · Casey A. Klofstad · Kaare Christensen · Magnus Johannesson · Patrik K. E. Magnusson · Lindon J. Eaves · Nicholas G. Martin

Received: 17 June 2013 / Accepted: 7 February 2014 / Published online: 26 February 2014
© Springer Science+Business Media New York 2014

Abstract Almost 40 years ago, evidence from large studies of adult twins and their relatives suggested that between 30 and 60 % of the variance in social and political attitudes could be explained by genetic influences. However, these findings have not been widely accepted or incorporated into the dominant paradigms that explain the etiology of political ideology. This has been attributed in part to measurement and sample limitations, as well the relative absence of molecular genetic studies. Here we present results from original analyses of a combined

sample of over 12,000 twins pairs, ascertained from nine different studies conducted in five democracies, sampled over the course of four decades. We provide evidence that genetic factors play a role in the formation of political ideology, regardless of how ideology is measured, the era, or the population sampled. The only exception is a question that explicitly uses the phrase “Left–Right”. We then present results from one of the first genome-wide association studies on political ideology using data from three samples: a 1990 Australian sample involving 6,894 individuals from 3,516 families; a 2008 Australian sample of 1,160 related individuals from 635 families and a 2010 Swedish sample involving 3,334 individuals from 2,607 families. No polymorphisms reached genome-wide

Electronic supplementary material The online version of this article (doi:10.1007/s10519-014-9648-8) contains supplementary material, which is available to authorized users.

Define “existence”

If external influence
vectors can instigate
and amplify epigenetic
momentum . . .

Is there a quantum
entanglement
component to this
epigenetic mechanism?

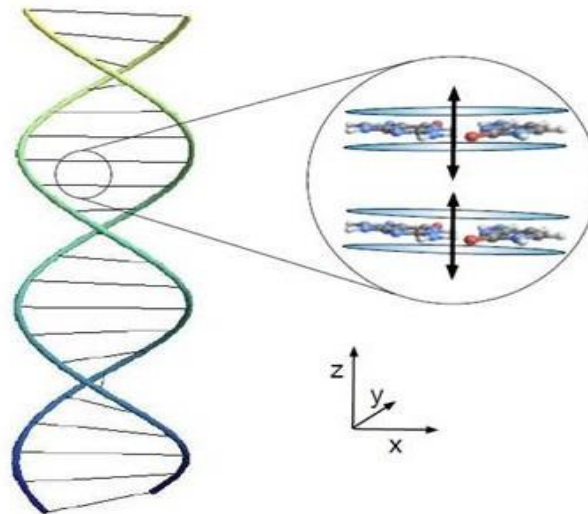


The Physics arXiv Blog
June 28, 2010

MIT
Technology
Review

Quantum Entanglement Holds DNA Together, Say Physicists

A new theoretical model suggests that quantum entanglement helps prevent the molecules of life from breaking apart.



There was a time, not so long ago, when biologists swore black and blue that quantum mechanics could play no role in the hot, wet systems of life.

Evolution into the Next Paradigm -

The new “normal” **> Supernormal**

The new “normal” –

Ubiquitous immersion into a realtime, all the time operational ecology in which the “real” and “virtual” coalesce into an ever evolving continuum, from which the very definition of individual life itself evolves into an entirely unique form of existence.

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The Global Brain and the Future Information Society

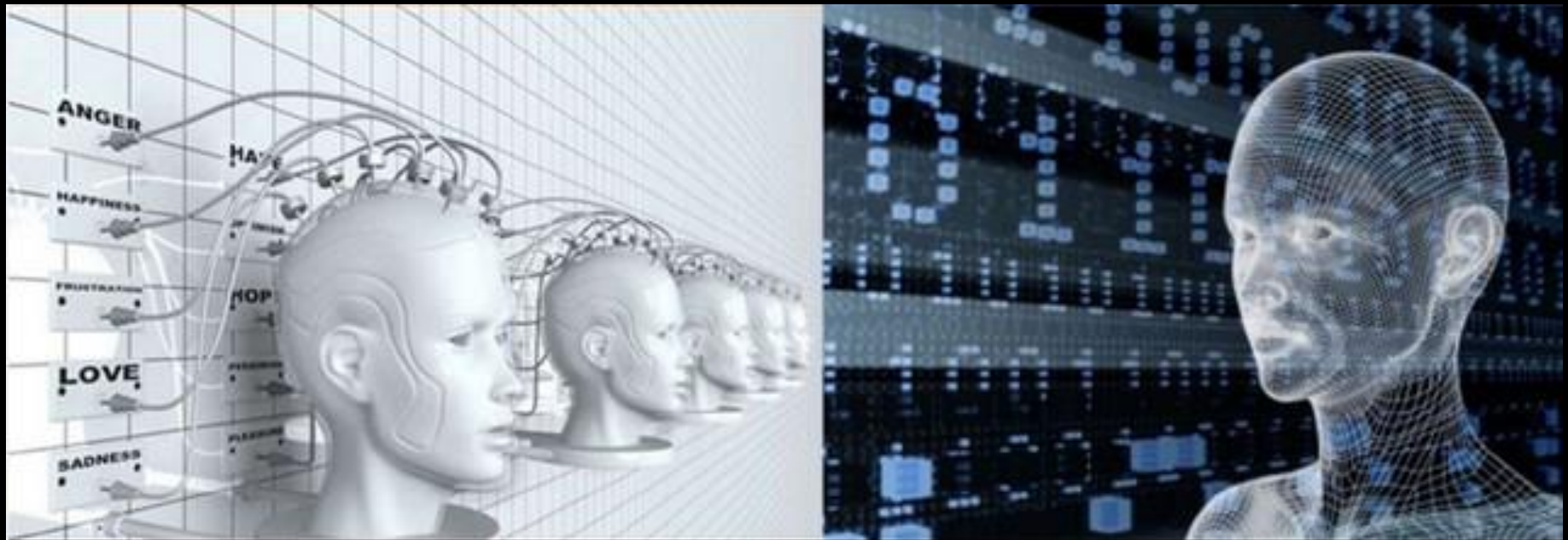
Vienna, June 4-6 2015
(main conference dates June 3-7)



Francis Heylighen

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

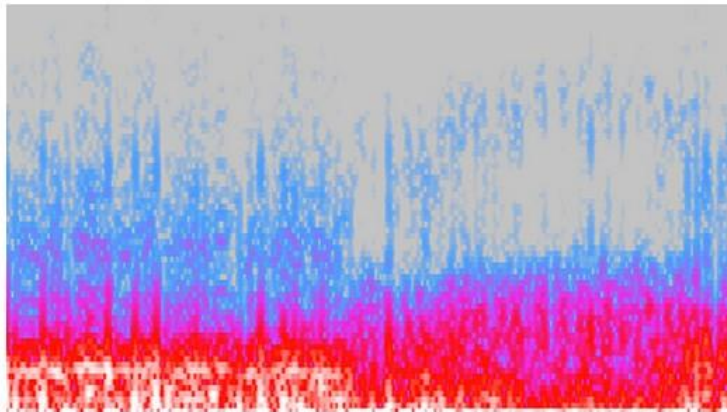
Machinery of Intent -



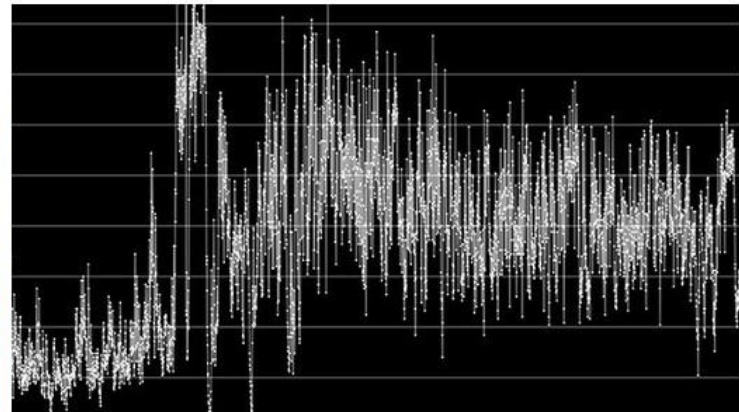
Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

pplkpr uses GPS and a **heart rate wristband** to keep track of when you're coming and going, and when you're feeling emotional. pplkpr implements a complex metric called "heart rate variability" that uses subtle changes in heart rhythm to determine your emotional state. This data is correlated with the people you interact with to determine who should be auto-scheduled into your life and who should be removed.



pplkpr's emotion classification algorithm was trained on open data published by academic researchers.



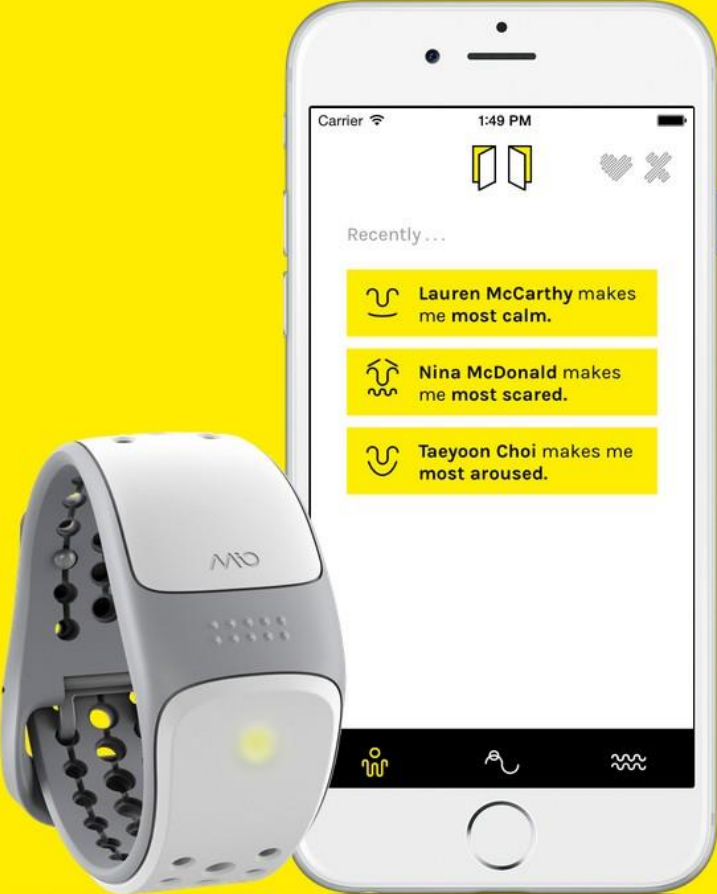
Heart rate variability is based on the balance between the sympathetic and parasympathetic nervous system, which operate at different frequencies.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

„If gave me the excuse to cut toxic friends out of my life„ – Jake' ppikpr nzel

„ppikpr meiqd me get a poltieuq„ – Micah' ppikpr nzel



The image shows a white smartphone and a white wristband. The smartphone screen displays a mobile app interface with a status bar at the top showing 'Carrier', signal strength, and '1:49 PM'. Below the status bar are icons for a folder, a heart, and a crossed-out heart. The main content area is titled 'Recently...' and lists three items, each with a small icon and a text box:

- Icon: A stylized 'u' shape. Text: 'Lauren McCarthy makes me most calm.'
- Icon: A stylized 'u' shape with a wavy line. Text: 'Nina McDonald makes me most scared.'
- Icon: A stylized 'u' shape with a wavy line. Text: 'Taeyoon Choi makes me most aroused.'

At the bottom of the screen is a navigation bar with three icons: a stylized 'u' shape, a stylized 'u' shape with a wavy line, and a wavy line. The wristband is white with a yellow light on the front and a series of small black dots on the back.

ppikpr notices when you're hanging out with someone or feeling emotional and prompts you to report.

You fill out the details and ppikpr aggregates and analyzes your data looking for trends.

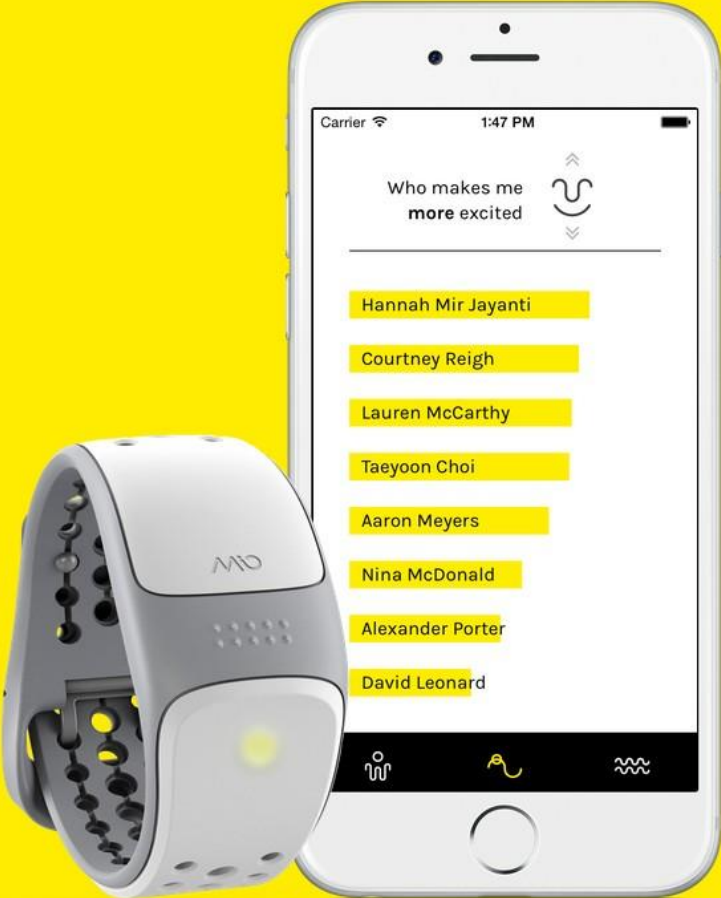
ppikpr gives you a breakdown of who's affecting you most, and acts for you – inviting people to hang out, sending messages, or blocking or unfriending negative friends.

See how your friends stack up: who makes you most excited, anxious, calm, or bored.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

pplkpr was created by **Lauren McCarthy** and **Kyle McDonald** to explore the implications of quantified living for relationships. Who owns the data created between two people, what if it is captured and used? What if algorithms could understand our relationships and make better interpersonal decisions than we can ourselves?



The image shows a white smartphone and a white wristband. The smartphone screen displays the pplkpr app interface. At the top, it says "Carrier" and "1:47 PM". Below that, it asks "Who makes me more excited" with a small icon of a person. A list of names is shown in yellow boxes: Hannah Mir Jayanti, Courtney Reigh, Lauren McCarthy, Taeyoon Choi, Aaron Meyers, Nina McDonald, Alexander Porter, and David Leonard. At the bottom of the screen, there are three icons: a person, a wavy line, and a zigzag line. The wristband is white with a yellow light and has the "MO" logo on it.

pplkpr notices when you're hanging out with someone or feeling emotional and prompts you to report.

You fill out the details and pplkpr aggregates and analyzes your data looking for trends.

pplkpr gives you a breakdown of who's affecting you most, and acts for you — inviting people to hang out, sending messages, or blocking or unfriending negative friends.

See how your friends stack up: who makes you most excited, anxious, calm, or bored.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

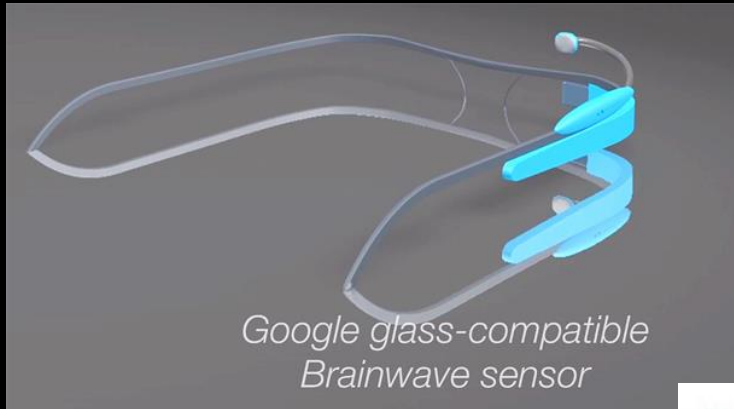
Pplkpr.mp4



pplkpr.mp4

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



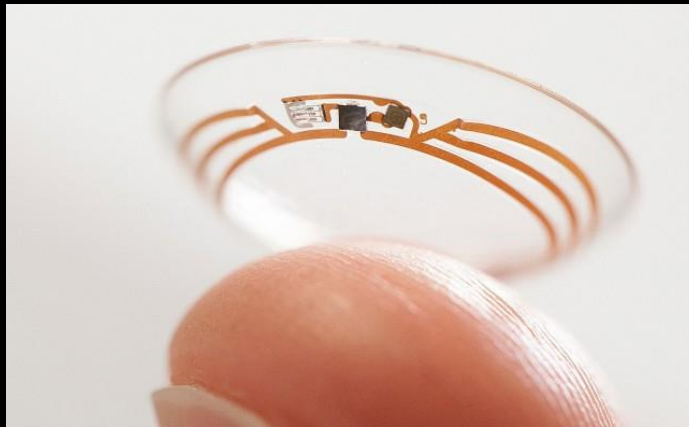
Biosensor innovation to power breakthrough wearable technologies today and tomorrow.

Our ECG and EEG biosensors deliver the intelligence that enables hundreds of health and wellness, education and entertainment products.

Biosensors for **Body** »

Biosensors for **Mind** »

NeuroSky®
Body and Mind. Quantified.



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



(Credit: Neurowear)

Keio University scientists have developed a “neurocam” — a wearable camera system that detects emotions, based on an analysis of the user’s brainwaves.

The hardware is a combination of Neurosky’s Mind Wave Mobile and a customized brainwave sensor.

The algorithm is based on measures of “interest” and “like” developed by Professor Mitsukura and the neurowear team.

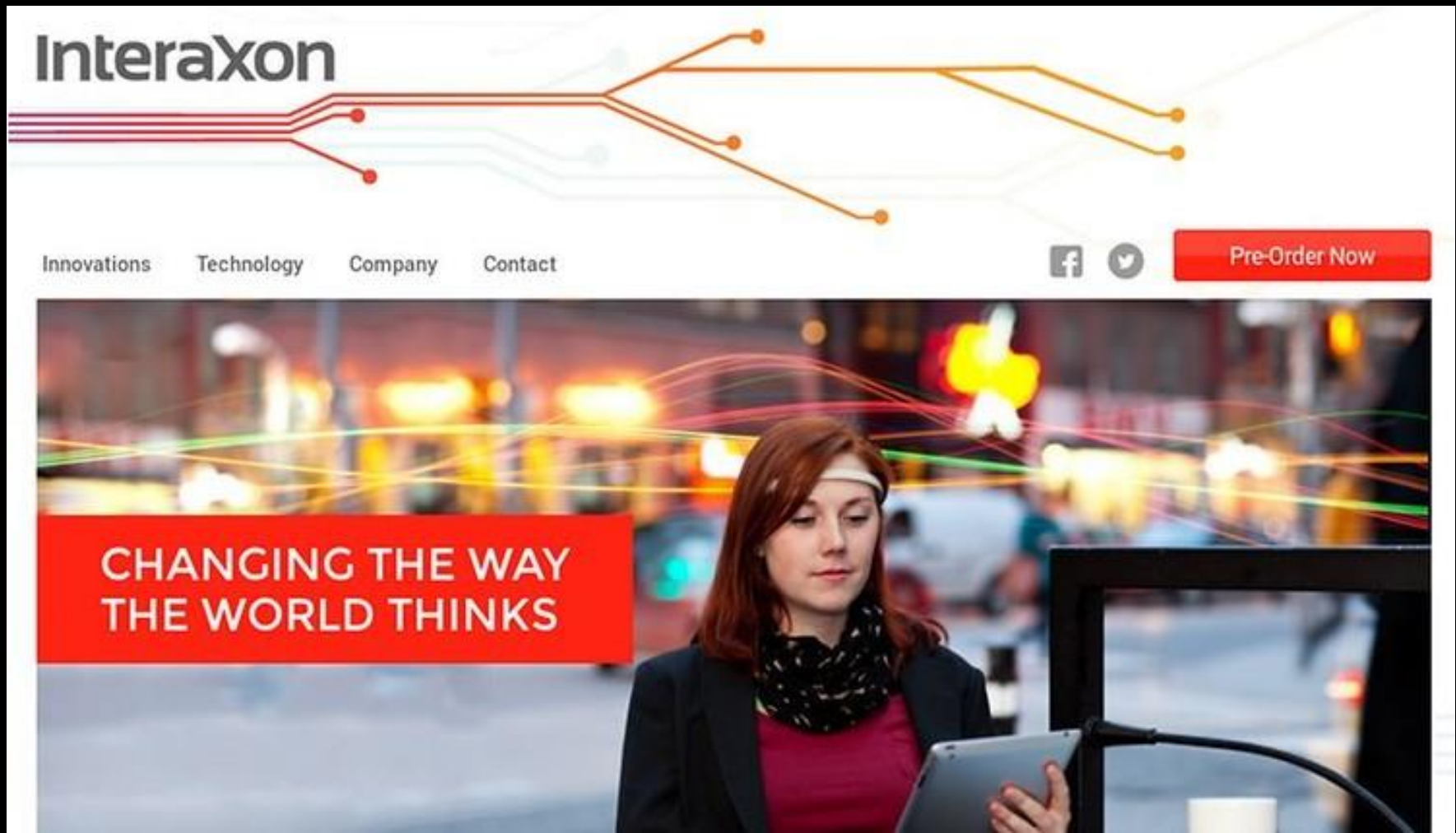
neuro
tagging
map



The smartphone app “neuro tagging map” offers a new way of communication based on location information and biological information.


Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -




Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -




Brain activity tracker


Emotiv Insight - a sleek, 5-channel, wireless headset that allows you to optimize your brain fitness & performance, and measure & monitor your cognitive health & wellbeing.




Hi-res, multi-channel




Wireless & portable




Easy to setup




Affordable



Win7, OSX, Linux, Android & iOS





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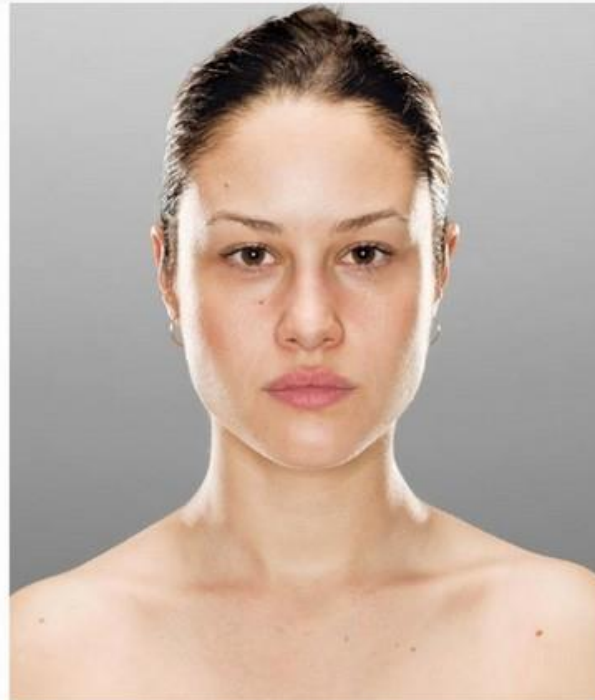
EMOTIV

YOUR IDEAL SELF IMAGE CANNOT STAY HIDDEN FROM EMOTIV EPOC



NEUROGADGET - OCTOBER 22, 2014

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Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

EMOTIV

Machinery of Intent -

Are you entirely happy with the image you see in the mirror? Wouldn't you change a little bit here or there? We all have physical characteristics that we do not like much, even if we are not conscious about these.

But what would we change about ourselves if no one, not even our consciousness was looking? Original Ideal combines portrait photography and neuroscience to isolate the subjects' ideal self image, the most sincere preference, obtained directly from the subjects' brainwaves with the help of an Emotiv EPOC headset.

The subjects were photographed bare-faced and without decoration, and later, while attached to the EPOC brain scanner, they were presented with versions of their own manipulated portrait, in order to determine which version they prefer. The original portrait was manipulated dozens of times and different features were changed to either fall in line with or go against traditional notions of beauty. This provided accurate data showing which version of themselves each person found most ideal. The results are presented in a series of images, with the image on the left showing the person's original self and the image on the right their ideal self.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

MIND / DECEMBER 1, 2014

WIN A BRAIN-CONTROLLED DRONE?



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

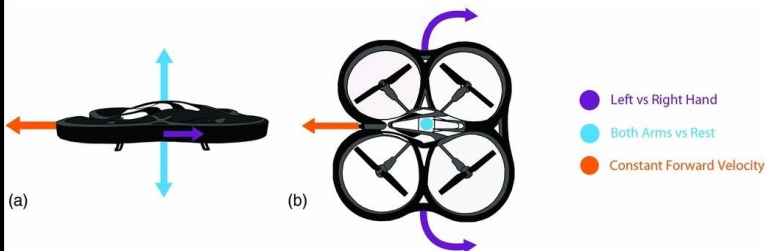
Machinery of Intent -

University of Minnesota researchers unveil a drone controlled by thoughts via brain-computer interface

The latest in mind-controlled robots comes from researchers at the University of Minnesota who have unveiled a drone controlled by the user's thoughts.

While robots controlled by brain waves have been around for a while, this is apparently the first drone that has been controlled by thoughts via an electroencephalogram (EEG) attached to a computer.

Figure 6 from Karl LaFleur et al 2013 J. Neural Eng. 10 046003



Internet of Things >
Internet of Thought

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

Filmed October 2014 at TEDGlobal 2014

Miguel Nicolelis: Brain-to-brain communication has arrived. How we did it



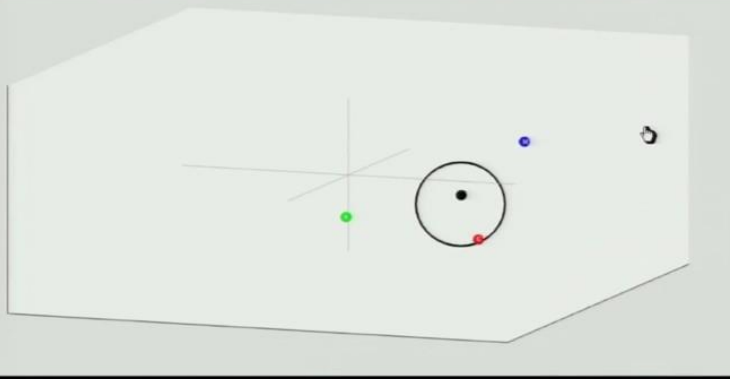
The Original World Cup Kickoff



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

A 3 MONKEY BRAINET AT WORK



● M controls X and Y ● C controls Y and Z ● K controls X and Z ● M, C, and K combined

TP Thomas Peterson
Posted 2 hours ago

I once believed that it would be nice if we could "read each others' minds." That was before I spent a couple of years on Facebook.

Reply Upvote (1)

Report



Charles Ostman
Posted a few seconds ago

For better or worse, FB and other social media venues are like a sort of evolutionary "training ground" for a new form of adaptive social cognition for which there is no precedent in known human history.

Many millions of young people have already spent their entire existence in a world where the projection of the virtual self has equal to, if not greater value, than their physical interactive presence. However, even in this virtualization of presence medium, the boundaries of what might be referred to as personal existence sovereignty can roughly defined by the individual, up to a certain extent.

In a realm of artificially enhanced telepathy (for lack of a better term), those definitional boundaries quickly become less tangible. Some will adapt effectively to this emergent virtual terrain, and others will not.

Reply Edit Delete

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



**Internet of Things >
Internet of Thought**

Evolution into the Next Paradigm -

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News, views and contacts from the global Army industry

Brain computer interfacing: a big step towards military mind-control

17 July 2013 Dr Gareth Evans

"Controlling mobile robot agents is one area where BCI appears to hold much promise."

"The US Defense Advanced Research Projects Agency (DARPA) has been funding a variety of BCI projects since the early 1970s."

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Brain computer interfacing: towards military mind-control

17 July 2013 Dr Gareth Evans

"Controlling mobile
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appears to hold much
promise."

3/4/2019

BRAIN-COMPUTER INTERFACES

Volume 1
Number 1, 2014
ISSN 2326-263X



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



Scientists Achieve Direct Brain-To-Brain Communication Between Humans

The Huffington Post 11/08/2014

Telepathy is the stuff of science fiction. But what if the dystopian futurists were on to something? What if our brains could directly interact with each other, bypassing the need for language? The idea isn't quite so far fetched, according to a recent University of Washington study in which researchers successfully replicated a direct brain-to-brain communication between two people.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



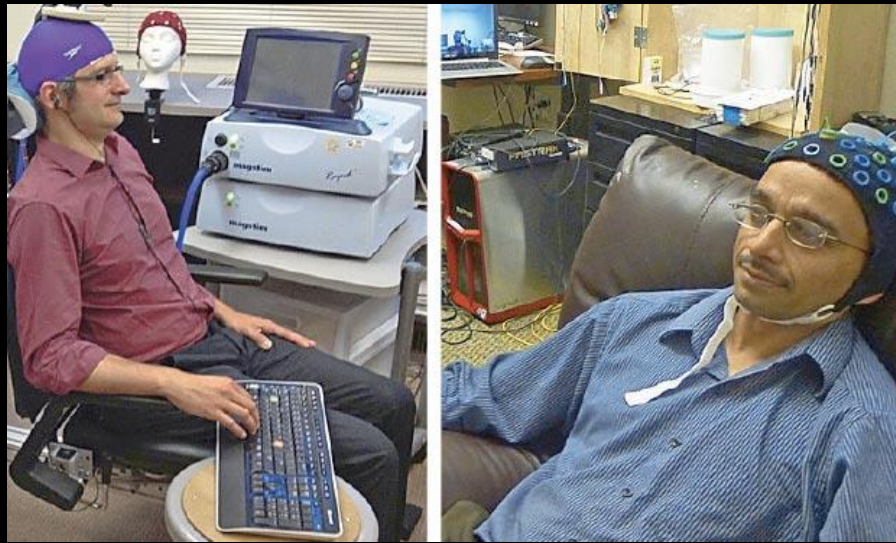
Scientists Achieve Direct Brain-To-Brain Communication Between Humans

The Huffington Post 11/08/2014

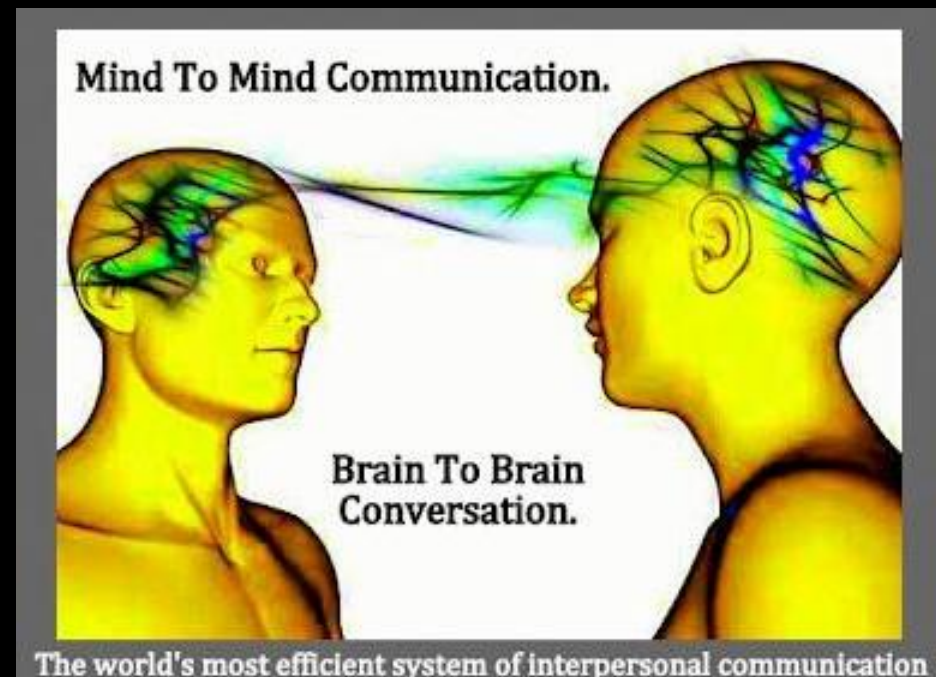
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Machinery of Intent -



University of Washington - August 2013

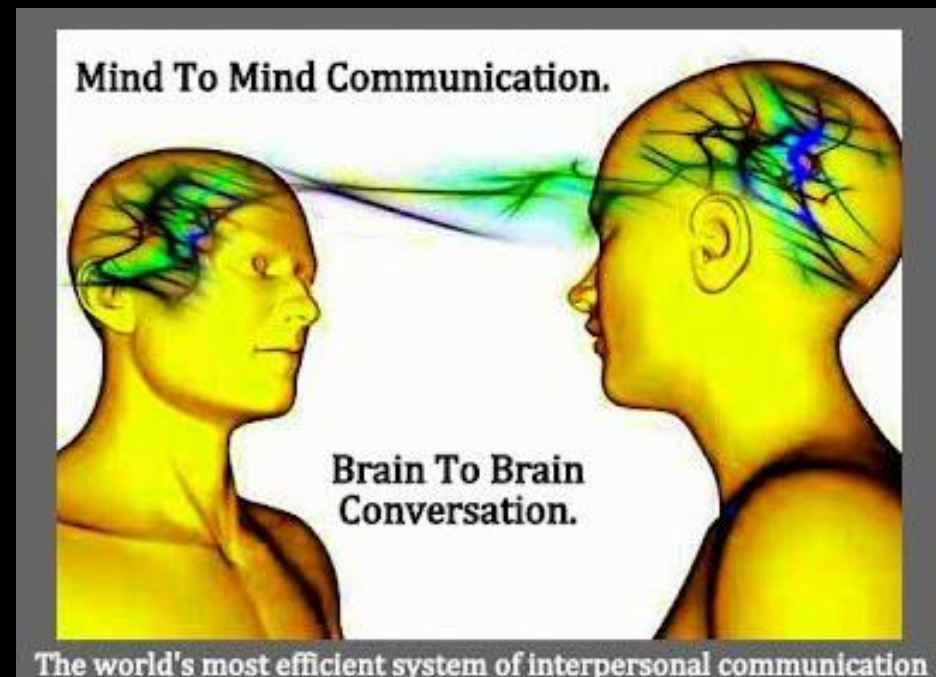


Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -



University of Washington - August 2013



Well . . . Maybe . . .

Evolution into the Next Paradigm -

Existence sovereignty



Mind to mind interface >

Internet of Thought >

**Training wheels for
Artificial Telepathy**

MindBigData

Type > Touch > Talk > **Think**

Welcome to the future of **your brain**

1.060.621 signals...

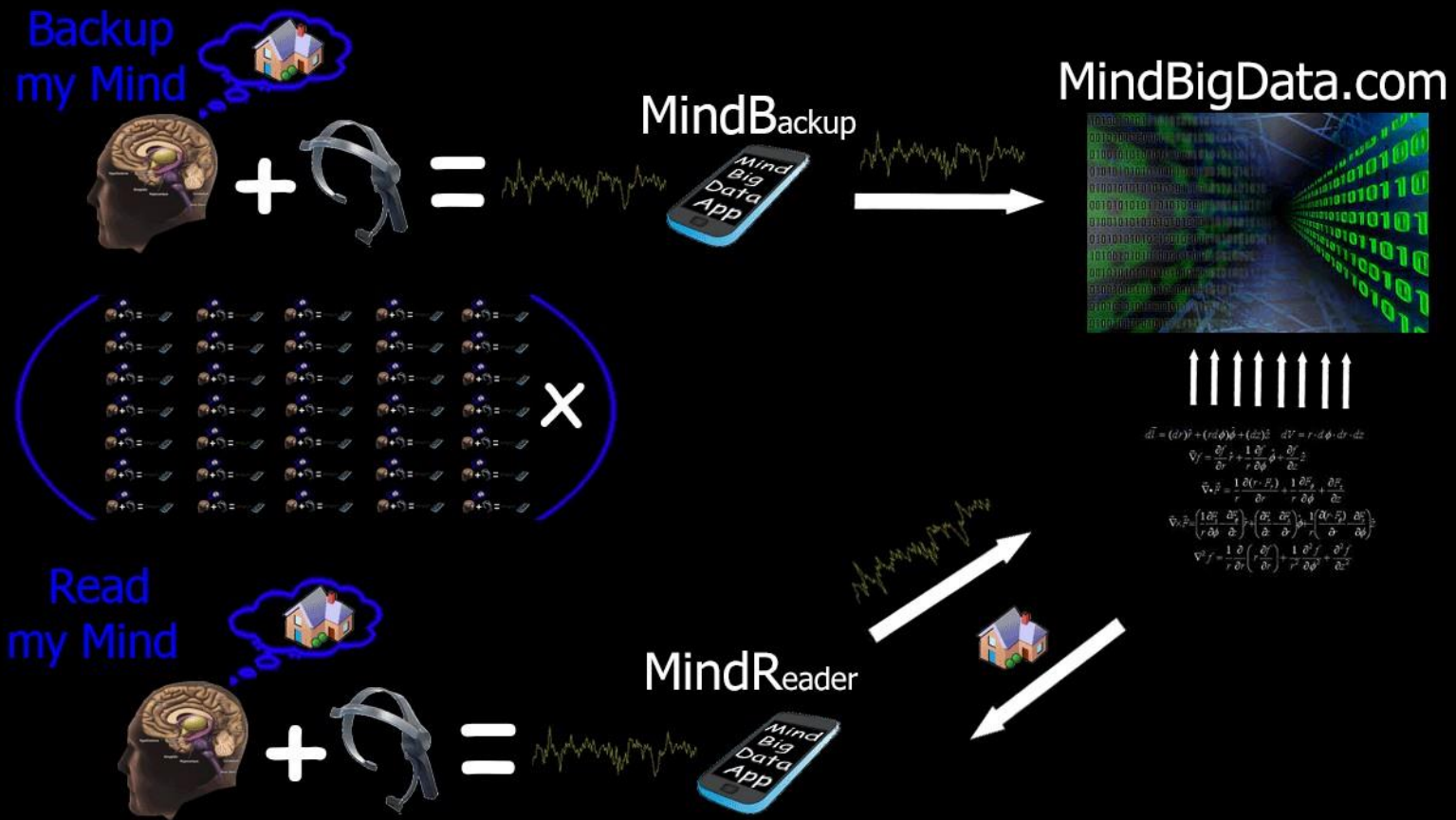
We need to understand what make us humans

& Now the technology is cheap and fast enough to enable it

Evolution into the Next Paradigm -

Existence sovereignty

The GOAL: Big Data of Brain Signals + Novel Deep Learning Algorithms = Mind Reading ...



Process Elements of Ubiquitous Computing

Complexity Threshold Symbiosis

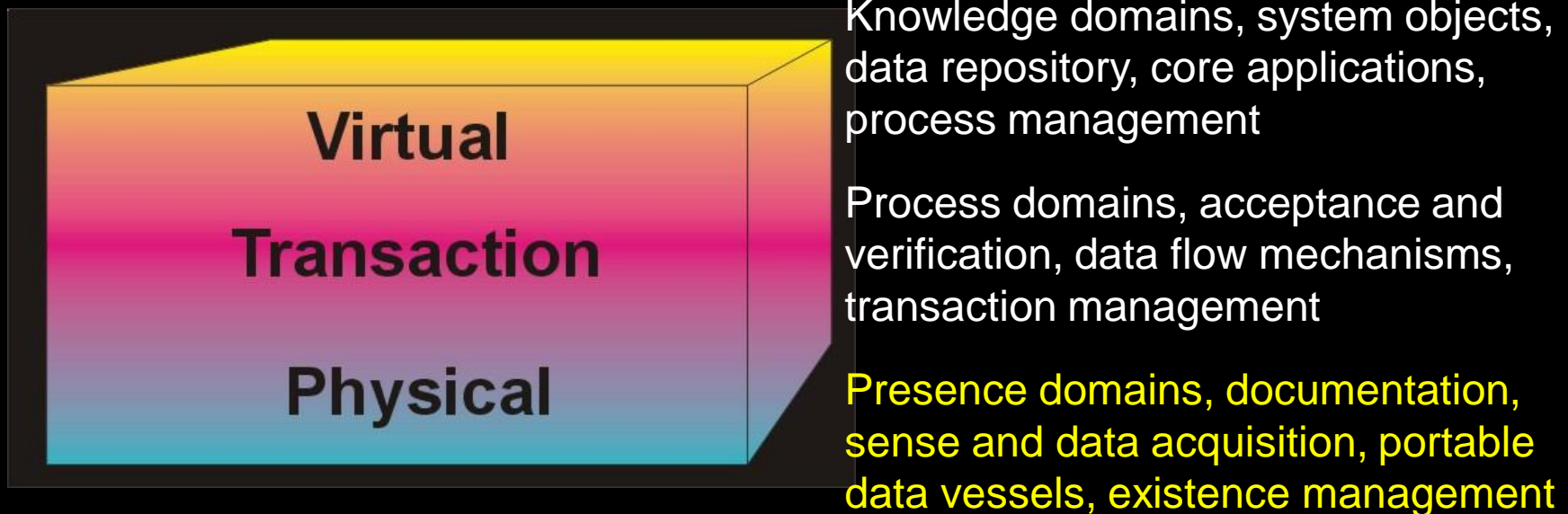
- Behavioral Biometrics
- Ubiquitous Existence Transacting
- Distributed Sensing / Computing
- Integrated Cognition Platforms



Process Elements of Ubiquitous Computing

Complexity Threshold Symbiosis

- ❑ Behavioral Biometrics
- ❑ Ubiquitous Existence Transacting
- ❑ Distributed Sensing / Computing
- ❑ Integrated Cognition Platforms



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

Current Biology

Use-Dependent Cortical Processing from Fingertips in Touchscreen Phone Users

Anne-Dominique Gindrat¹, Magali Chytritis², Myriam Balerna², Eric M. Rouiller, Arko Ghosh^{1,2} 
¹ Co-first author

DOI: <http://dx.doi.org/10.1016/j.cub.2014.11.026>

Published online 12/25/2014

Summary

Cortical activity allotted to the tactile receptors on fingertips conforms to skilful use of the hand [1–3]. For instance, in string instrument players, the somatosensory cortical activity in response to touch on the little fingertip is larger than that in control subjects [1]. Such plasticity of the fingertip sensory representation is not limited to extraordinary skills and occurs in monkeys trained to repetitively grasp and release a handle as well [4]. Touchscreen phones also require repetitive finger movements, but whether and how the cortex conforms to this is unknown. By using electroencephalography (EEG), we measured the cortical potentials in response to mechanical touch on the thumb, index, and middle fingertips of touchscreen phone users and nonusers (owning only old-technology mobile phones). Although the thumb interacted predominantly with the screen, the potentials associated with the three fingertips were enhanced in touchscreen users compared to nonusers. Within the touchscreen users, the cortical potentials from the thumb and index fingertips were directly proportional to the intensity of use quantified with built-in battery logs.

Using Your Phone Is Changing Your Brain

Posted: 12/24/2014 9:45 am EST | Updated: 12/25/2014 9:59 pm EST



Highlights

- Smartphone users have an enhanced thumb sensory representation in the brain
- The brain activity is proportional to use accumulated over the previous 10 days
- An episode of intense use is transiently imprinted on the sensory representation
- Sensory processing in the brain is adjusted on demand by touchscreen phone use

- Behavioral Epigenetics

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

Michela Balconi
Editor

Neuropsychology of the Sense of Agency



From Consciousness to Action

Characterization of
neuropsychology >
Process dynamics of
intention and belief

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

Michela Balconi
Editor

Neuropsychology of the Sense of



3.3.6.1

Illusion of Intention

Wegner [29] uncovered a reconstructive mechanism of experience of intention in a study demonstrating that subjects can be led to think that they consciously intended actions or consequences of actions which they did not produce themselves. This phenomenon is said to be based on the mechanism of back referral of an intention. In a study by Wegner and Wheatley [30], subjects retrospectively attributed conscious intentions to themselves in order to explain actions that were actually performed by another person. In most of these studies, the *illusion of will* was evoked within a context in which externally produced action effects were attributed to the self. A recent contribution described the existence of differences between the confusion of intentions that may occur between the effects of self-generated and externally generated actions, and confusion about the voluntariness of our own actions [31]. Specifically, subjects may ascribe intentions to their actions, although they did not actually intend them. The subjective inability to tell the difference between a voluntary decision to resume an ongoing action and an inability to stop an ongoing action can be demonstrated by using a Go/NoGo paradigm.

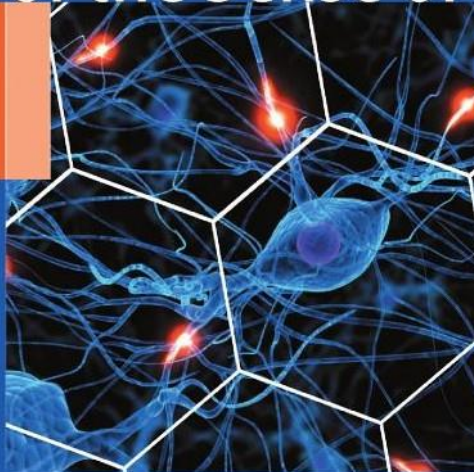
From Consciousness to Action

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

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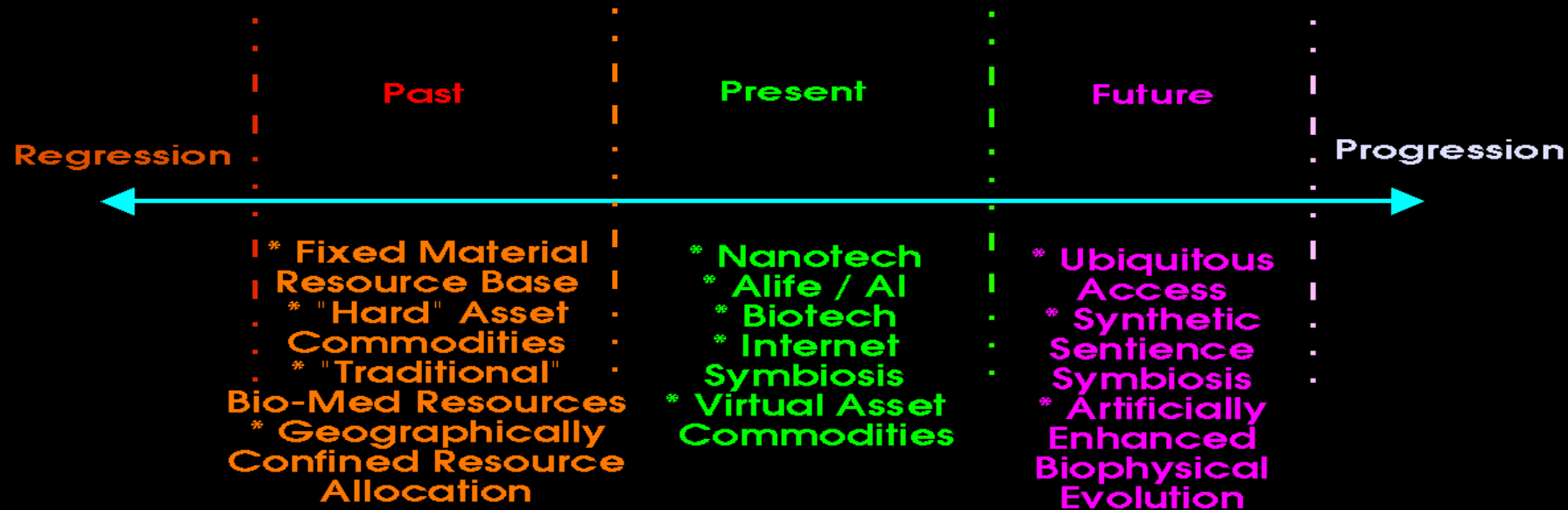
3.3.6.1

Illusion of Intention

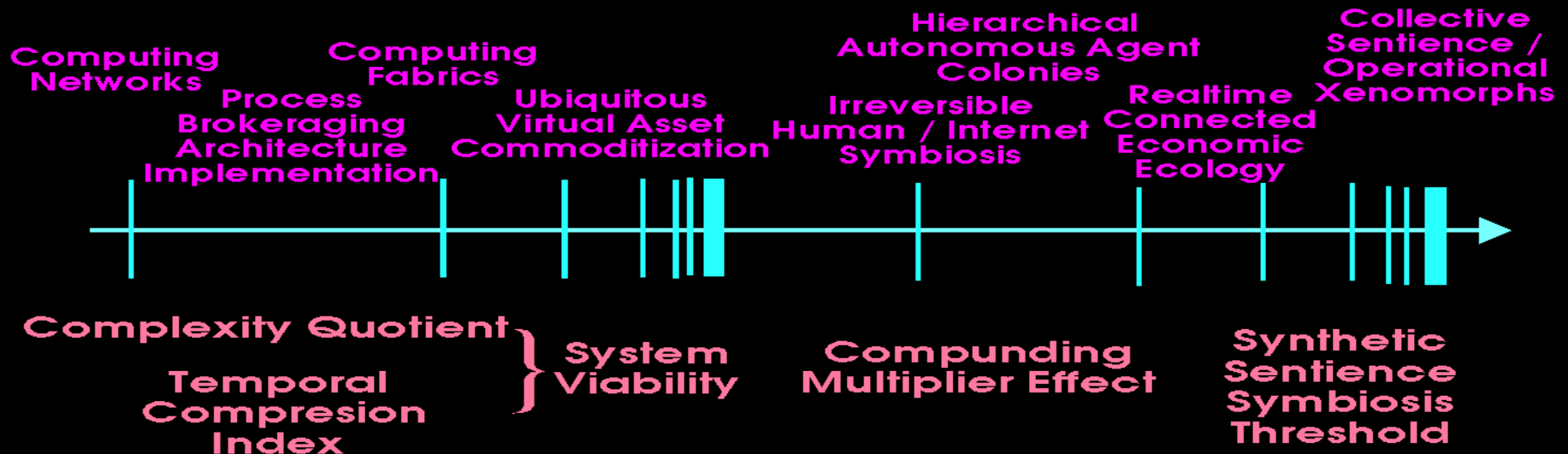
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From Consciousness to Action

Technology Driven Socio-Anthropological Evolutionary Threshold Domains



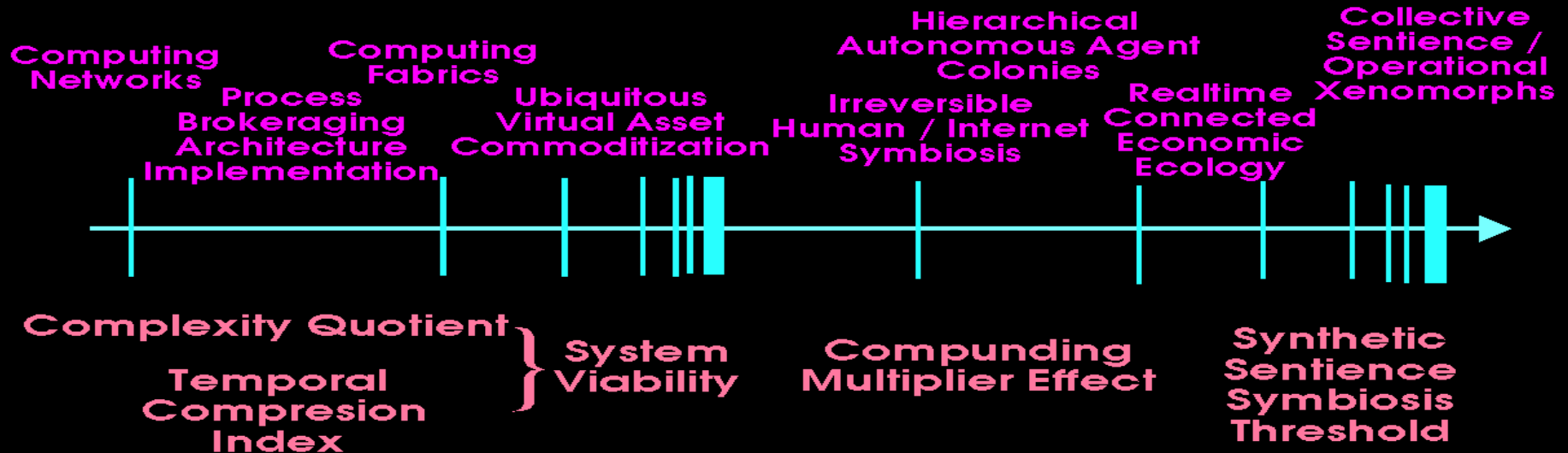
Evolutionary Eventstream Seminal Markers



Technology Driven Socio-Anthropological Evolutionary Threshold Domains



Evolutionary Eventstream Seminal Markers



Quantum access – the next increment of n-dimensional evolution



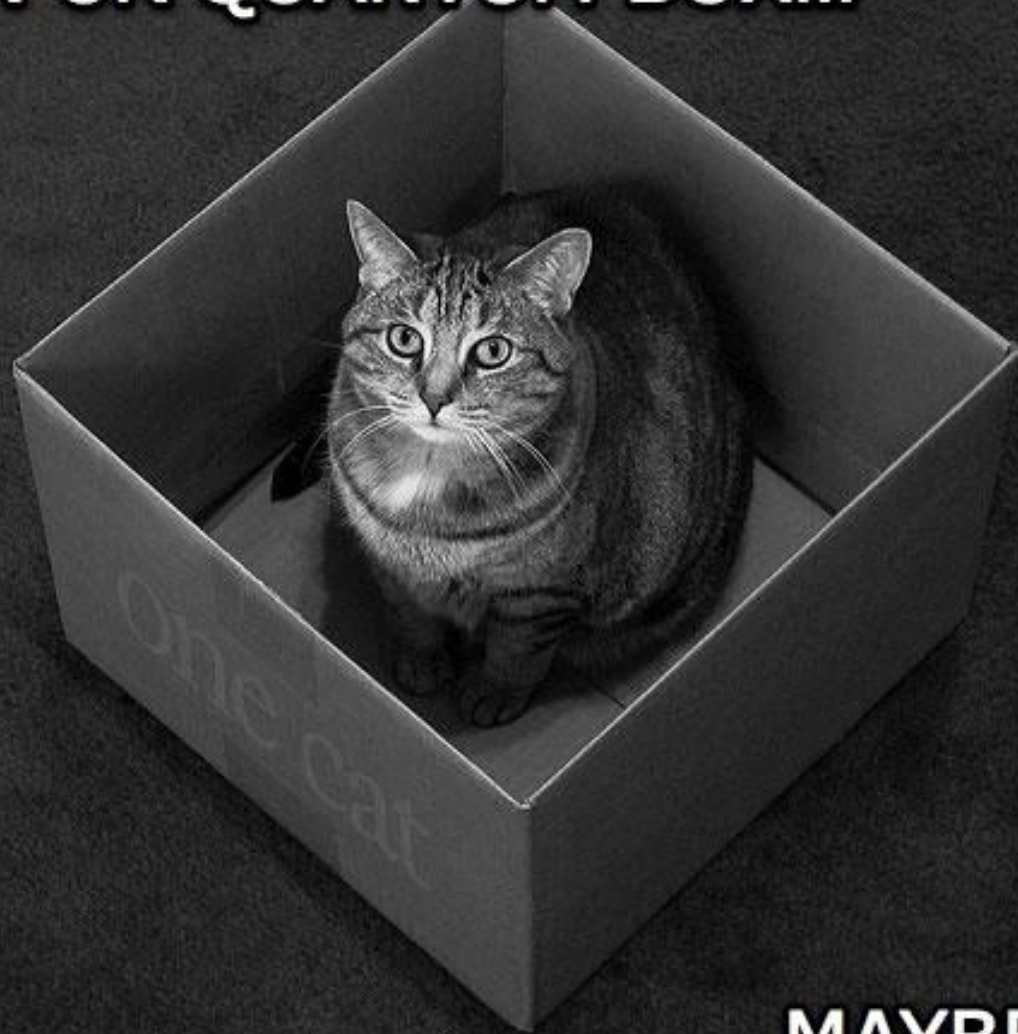
Evolution into the Next Paradigm -

Pieces of the puzzle . . .

An interesting set of tools



IN UR QUANTUM BOX...



...MAYBE.

Define “You”

You Are Here . . . Maybe . . .



10 - 25
Years

Define "You"

Near Future

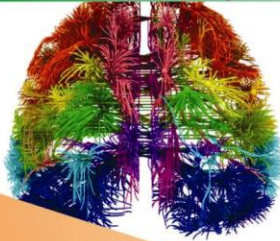


You are here

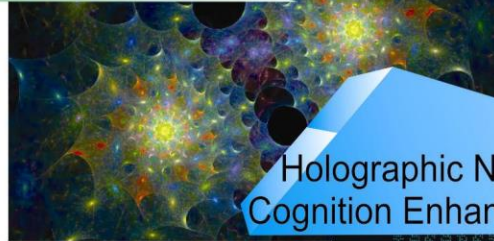


Human-Synthoid
Co-Evolutionary Symbiosis

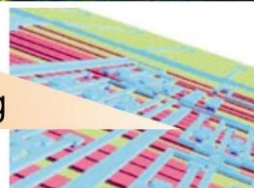
Emergent



Holographic Neural Mapping
Cognition Enhancement Engines

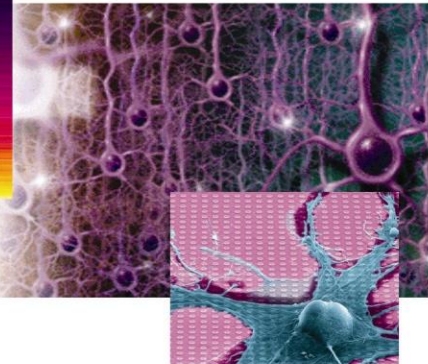


Self Evolving Neural Networks
Biological Metaphors in Computing



Current

Neural Implants
Direct Neural Interface
Cognition Enhancement



10 - 25
Years

Define "You"

You Are
Here

Near Future



Synthetic Genomics
Genetic Transhumanism

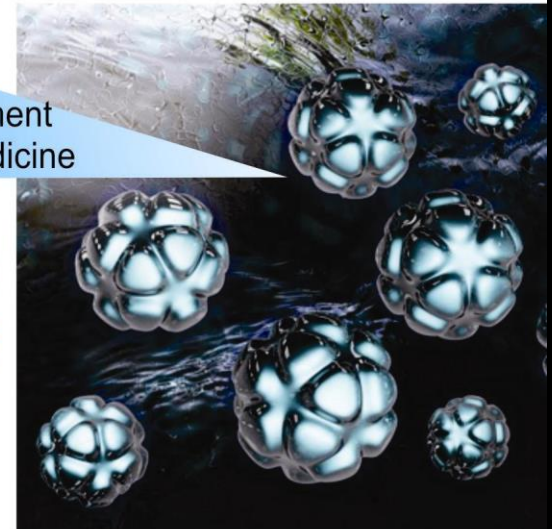
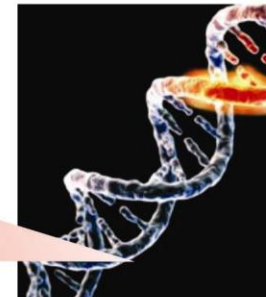
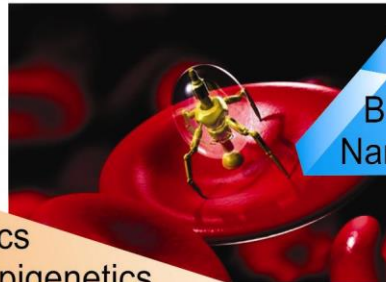
Emergent

Selective Genomics
Accelerating Behavioral Epigenetics

Biomorphic Enhancement
Nanobiology - Nanomedicine

Current

Synthetic Biology
Genome mapping
Molecular Medicine



10 - 25
Years

Define "You"

You Are
Here



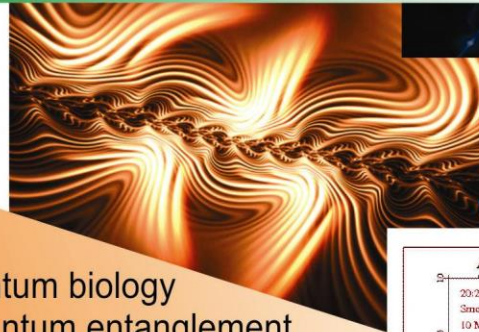
Near Future



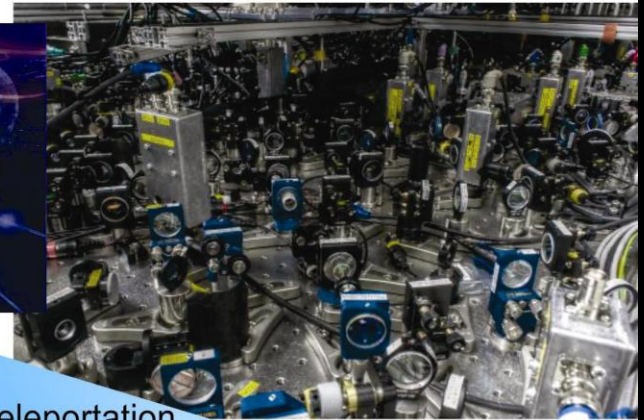
Quantum cognition
Collective consciousness



Emergent



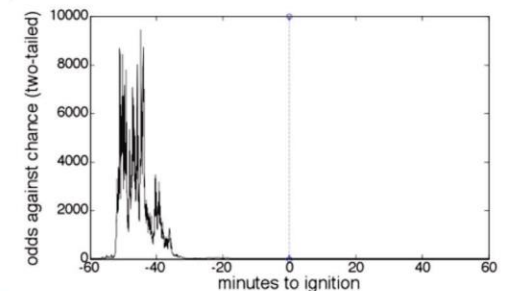
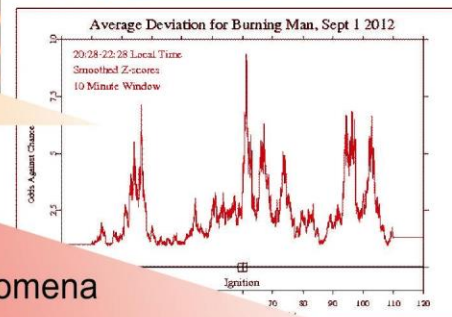
Quantum teleportation
Intention Transparency Mapping



Quantum biology
Photonic quantum entanglement

Current

GCP data sets
Refined nonlocal phenomena



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

Opacity vs. Transparency

Opacity:

- Enhances economic premiums
- Protects competitive advantage
- Develops deep emotional bonds and repeat purchase
- Obscures dubious sourcing, pricing and employment practices

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent – Commoditized Transparency

2000 onward: The **Transparency** System. Focused on conversations.
The only model for the network economy.

- **Transparent** people
want
- **Transparent** products
made by
- **Transparent** organisations
sold in
- **Transparent** markets



“What does the future hold ?”

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

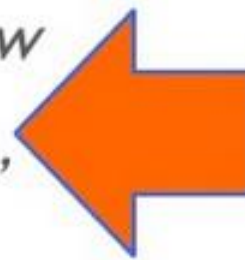
Machinery of Intent – Commoditized Transparency

In summary: the twin forces of transparency...

The Marketisation of
everything



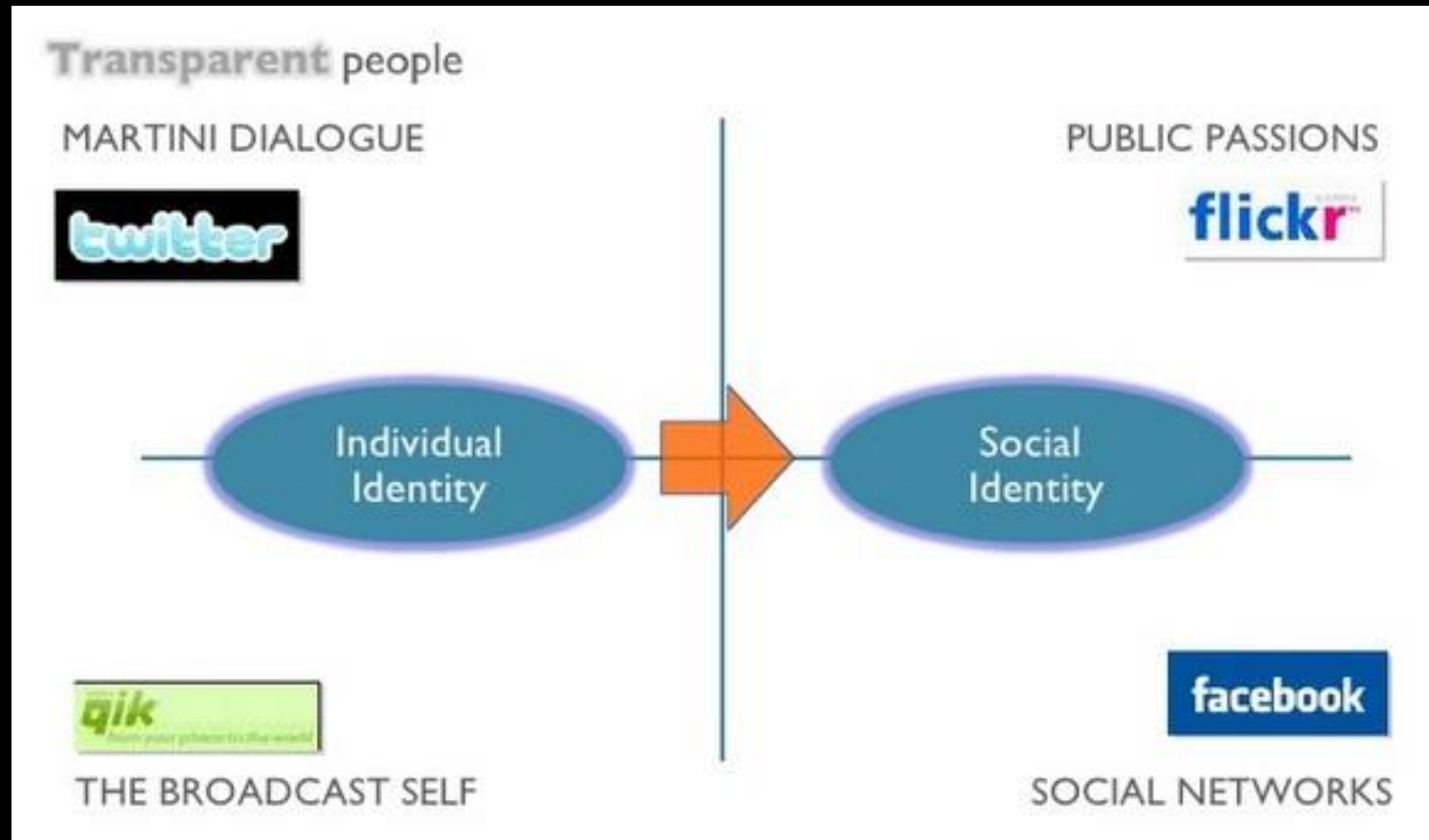
*The New
“Social
Market”*



The Socialisation of
everyone

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent – Commoditized Transparency



Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

The Illusory Transparency of Intention: Linguistic Perspective Taking in Text

BOAZ KEYSAR

University of Chicago

Subjects read scenarios where a speaker made a comment that, depending on information that was privileged to the subjects, could have been interpreted as sarcastic or not sarcastic. Their task was to take the perspective of an *uninformed* addressee and determine whether he or she would perceive sarcasm. Overall, when subjects believed that the speaker was actually being sarcastic they were more likely to attribute the perception of sarcasm to the addressee—even when the message was conveyed in writing and could not have involved disambiguating cues such as intonation. Data from four different experiments suggest that readers do use information that is perspective-irrelevant and thus pose a problem for theories of language use that assume readers only use “relevant” information. © 1994 Academic Press, Inc.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

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The Illusory Transparency of Intention: Linguistic Perspective Taking in Text

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Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

This is an abbreviated version of the paper presented at the ISAS 98 and SCI 98 conferences - Orlando, Florida - July, 1998,

Synthetic Sentence as a Strategic Commodity Resource

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San Francisco State University

2615 Shasta Rd.

Berkeley, California 94708

charles000@aol.com

<http://www.biota.org/ostman/charles1.htm>

Transactional Process Brokeraging of Virtual Commodity Assets An Emergent Economic Ecology

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Institute for Global Futures

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Berkeley, California 94708

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<http://www.biota.org/ostman/charles1.htm>

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

Machinery of Intent -

As a mission critical commodity resource, contextually enhanced and conditionalized *knowledge domains* are being compressed into shorter useful lifetime cycle windows.

Knowledge *velocity, complexity, and scale* are surpassing human decision rendering capacity, particularly when under duress in mission critical applications confined to ever shorter timescales. We are rapidly entering into a realm where decision rendering, as a mission critical process under such situations, will literally exceed human capacity to render such decisions effectively.

The substrate of socio-economic systems, valuation indices of commodities and currency systems, the status of industry base strata and their attendant distribution structures, are already in a state of flux as this fabric is being drawn into a global connectivity grid, currently referred to as the Internet.

This symbiosis between the connectivity of the Internet, massively parallel distributed processing networks, and the resource of evolvable, self adapting entities flourishing in the *virtual ecology* of this fabric of functionality, are destined to reshape almost every aspect of business, technology development, commodity valuation standard, and even entire economic systems interconnected on a global scale.

By utilizing the combination of core hardware and software technologies integrated into evolvable key components together to create a system architecture development strategy, I submit that it is not only possible to implement a self-evolving, dynamic *organelle* component system which would spawn generations of computational and cognitive systems mimicking the physiologies of living organisms -- it is *inevitable*.

Pieces of a Complex Puzzle, Can We Assemble the Pieces into a Coherent Picture?

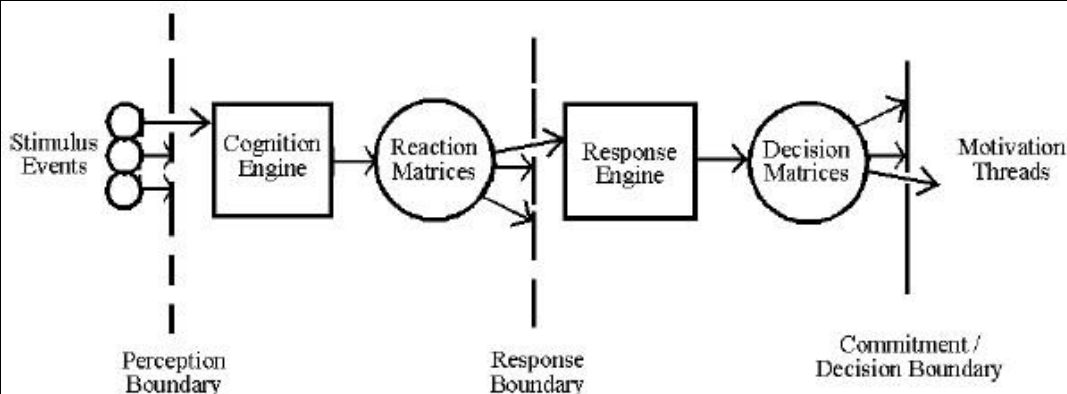
Machinery of Intent -

Figure 2:

3.2 Conditionalized Knowledge Harvesting as a Motivational Influence

However, even in the case of a single entity, the most basic form of reward generated motivation can be at the physiological level, as in *conditionalized knowledge harvesting as a type of food source*. A survival quotient, as a perceptual cue influence stimulus, can be seen as being potentially "upgradable" to an influence of a more

emotional nature, such as a pleasure perception event, i.e., pleasure quotient associated with effective knowledge harvesting.



Motivation Thread Propagation Through A Conditionalized Behavior Matrix

3.4 Example of a virtual asset commodity resource from a "fabric" resource ecology, populated with a hierarchical agent colonies / subspecies systems

Figure 8 indicates an operational resource, output product, and goal implementation reference matrix, adapted to provide, in this example, the ultimate goal objective of an optimized near realtime nodal interconnect routing architecture implementation on a wide spectrum tactical wireless network.

Example "virtual commodity assets", as would be primary elements of a valuation indexing reference matrix in a process brokering architecture based economic system:

- Information sets and sovereign knowledge domains
- Decision rendering and distributed intelligence assets
- Combinatorial processing resources and process matrices
- Intelligent autonomous agents and synthetic sentience
- Resource management and process routing modalities
- Predictive and adaptive analysis tools and applications
- Modeling, synthesis, and informatics related processes

NATURE | NEWS

Quantum teleportation achieved over record distances

The secure method of speedy communication of information could lead to space-based transmission.

John Matson

13 August 2012

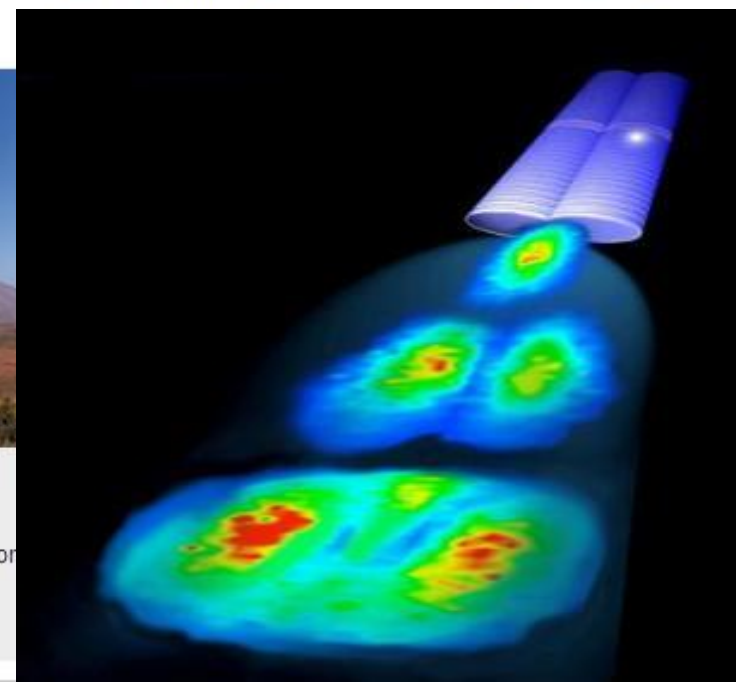
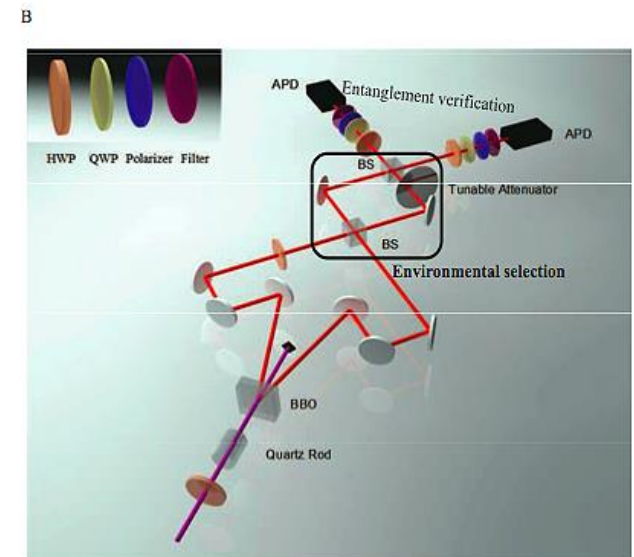
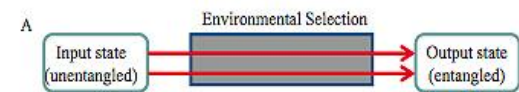
An article from Scientific American.

Two teams of researchers have extended the reach of quantum teleportation to unprecedented lengths, roughly equivalent to the distance between New York City and Philadelphia. But don't expect teleportation stations to replace airports or train terminals — the teleportation scheme shifts only the quantum state of a single photon. And although part of the transfer happens instantaneously, the steps required to read out the teleported quantum state ensure that no information can be communicated faster than the speed of light.



The European Space Agency's Optical Ground Station on Tenerife in the Canary Islands was used as a receiver in recent quantum teleportation experiments.

ESA



Quantum Physicists Show a Small Amount of Randomness Can Be Amplified Without Limit

May 16, 2012 — Once again quantum physics gives us philosophical implications: physicists showed how a small amount of randomness can be amplified without limit.

This is where quantum biology becomes “interesting” — Thought experiment amplifies randomness

Matter & Energy

- Quantum Physics
- Physics
- Quantum Computing

Computers & Math

- Quantum Computers
- Hacking
- Spintronics Research

Classical physics is deterministic: for example, we can determine the position and velocity of a particle at any time in the future. Quantum theory, on the other hand, states that there exist processes which are fundamentally random: for instance, the outcomes of measurements of quantum particles seem to be determined entirely by chance. This is why Einstein argued in a publication in 1935 that the quantum theory is incomplete, and yet another kind of higher theory must exist, but up to the present time there has been no proof either that the world is purely deterministic and all randomness is due solely to a lack of knowledge about certain events, or that everything happens purely by chance. However, ETH Zurich physicists have now succeeded in showing in a thought experiment that randomness can be amplified.



Once again quantum physics gives us philosophical implications: physicists showed how a small amount of randomness can be amplified without limit. (Credit: © Africa Studio / Fotolia)

Related Stories



Physicists Make Strides in Understanding Quantum Entanglement

(Dec. 14, 2012) — While some theoretical physicists make predictions about astrophysics and the behavior of stars and galaxies, others work in the realm of the very small, which includes quantum physics. Recently, ... > [read](#)

Evolution into the Next Paradigm -



This is where
quantum biology
becomes “interesting”

If the future is going to be nothing like today, then the current paradigm won't be good enough. We need to start building a new paradigm today, one that takes the uncertainty of the future, and uses it to understand what our options are.

Evolution into the Next Paradigm -

This is where
quantum biology
becomes “interesting”

Let's Party



Influence Pessimism



The end of the world is near

Essence Optimism



We can make it
better if we work
together

Influence Optimism

It will be a challenge and it probably
won't work, but we have to try



Essence Pessimism



Frederick Polak's Images of the Future – influences our perspectives on the future

Evolution into the Next Paradigm -

The Global Consciousness Project

Meaningful Correlations in Random Data

This is where
quantum biology
becomes “interesting”



*The behavior of our network of
random sources is correlated with
interconnected human
consciousness on a global scale*

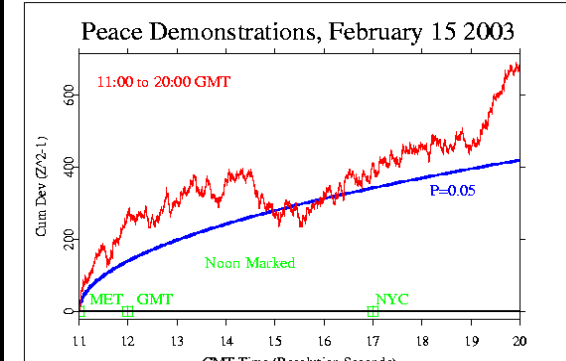
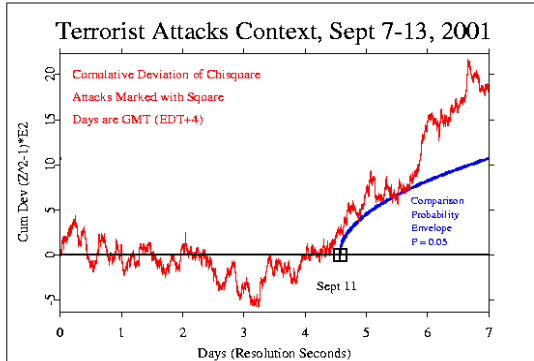
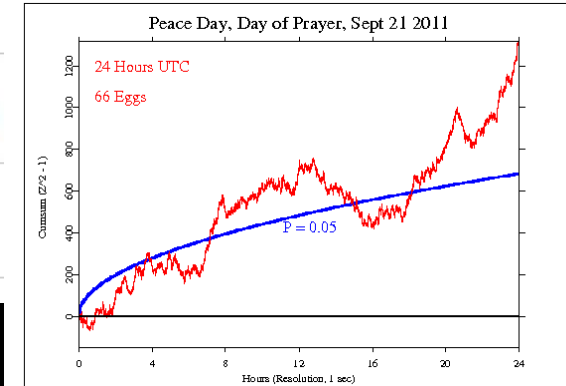
Coherent consciousness creates order in the world
Subtle interactions link us with each other and the Earth

Evolution into the Next Paradigm -

Table 1: Overall Summary of Results
August 1998 to January 2015

Category	Hypothesis	Number of Events
Rigorously Defined Events	Positive Deviation	484

<http://noosphere.princeton.edu/results.html#alldata>



September 11 2001 Destruction of the World Trade Towers
Increased network variance (Netvar) for 50 hours

**Human caused
Disasters yield
Strong effects**

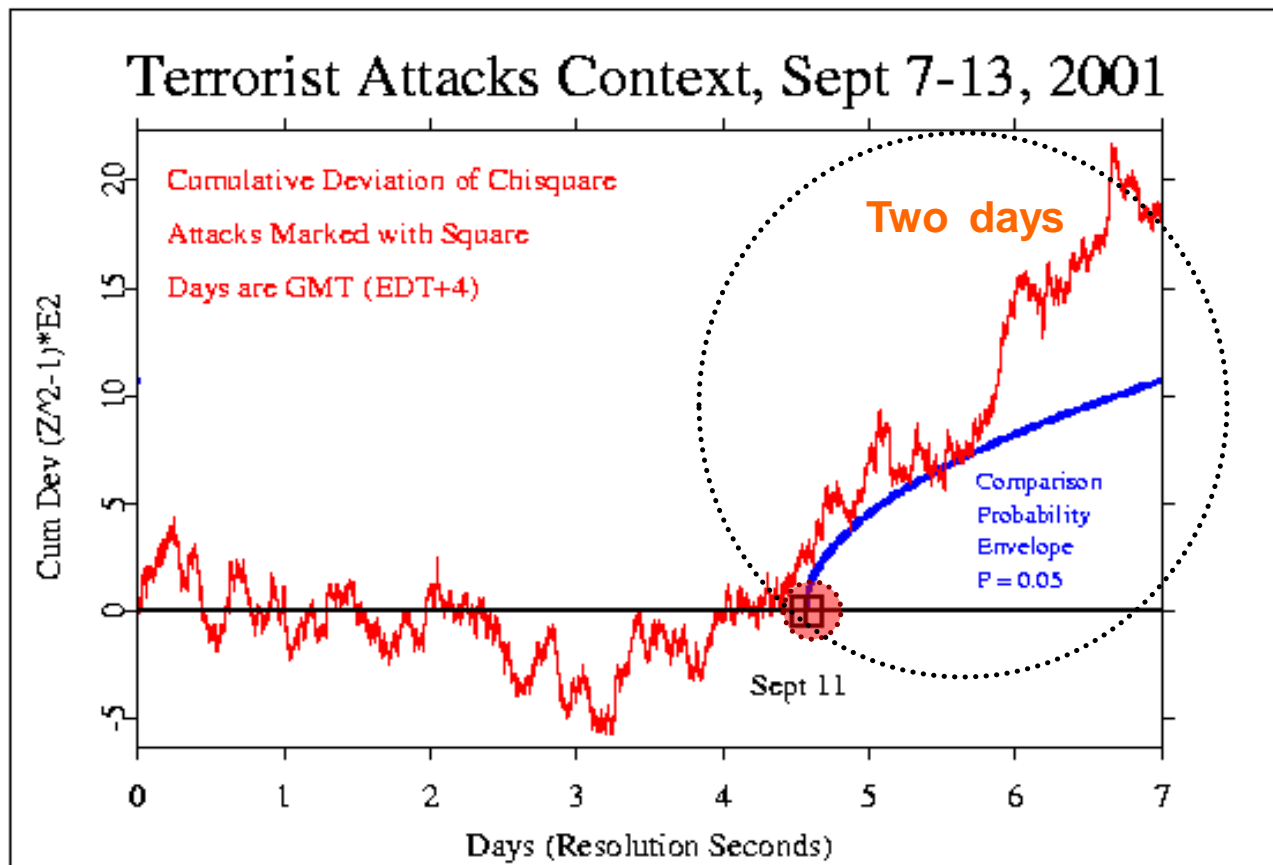
**The World
Trade Center
September 11
2001**



September 11 2001

Destruction of the World Trade Towers

Increased network variance (Netvar) for 50 hours

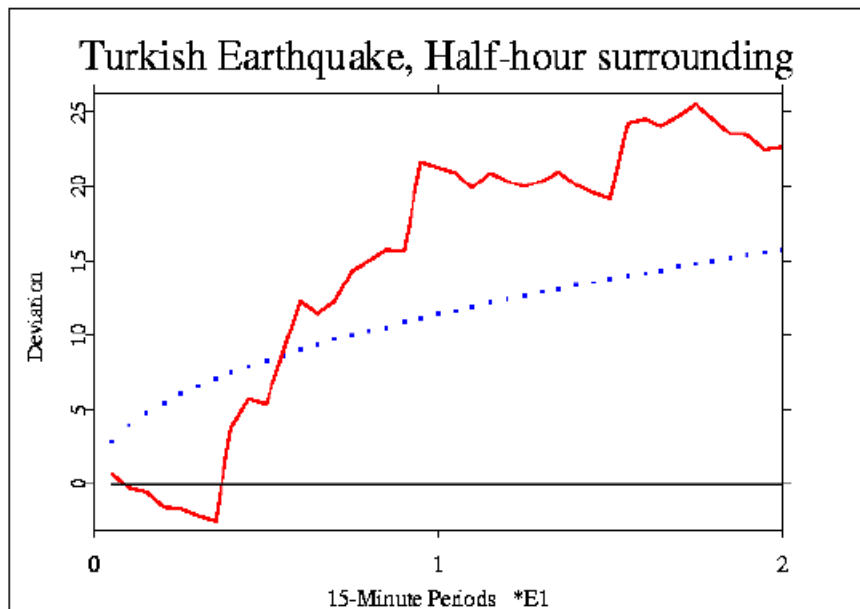


Continuous random sequences since 1998

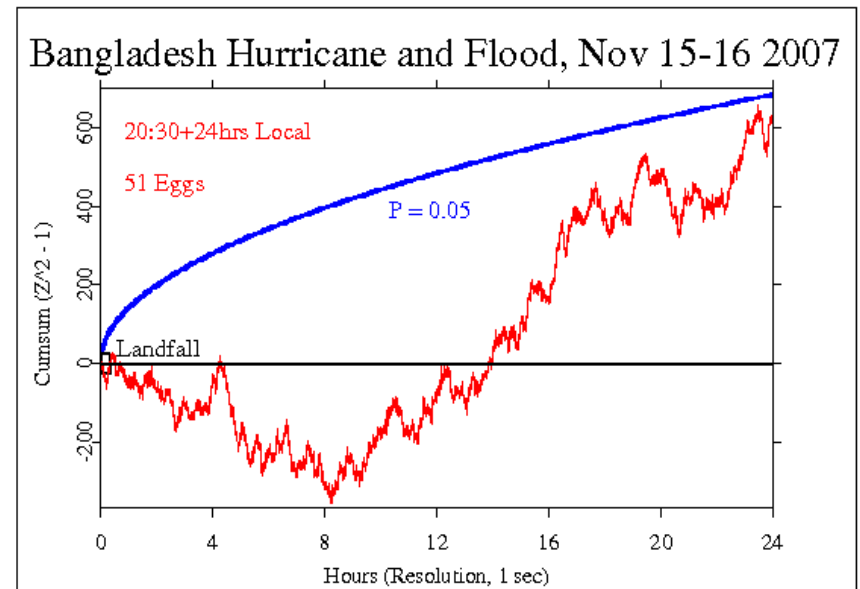
History of data that we can compare with a

History of Global Events, e.g. Natural Disasters

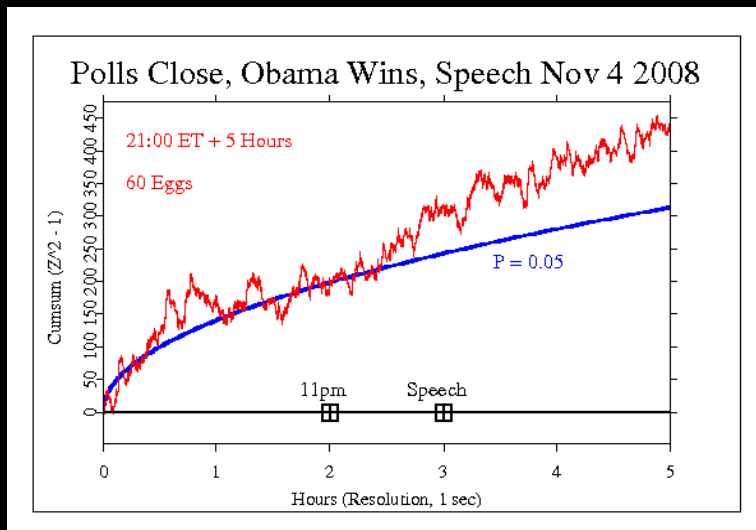
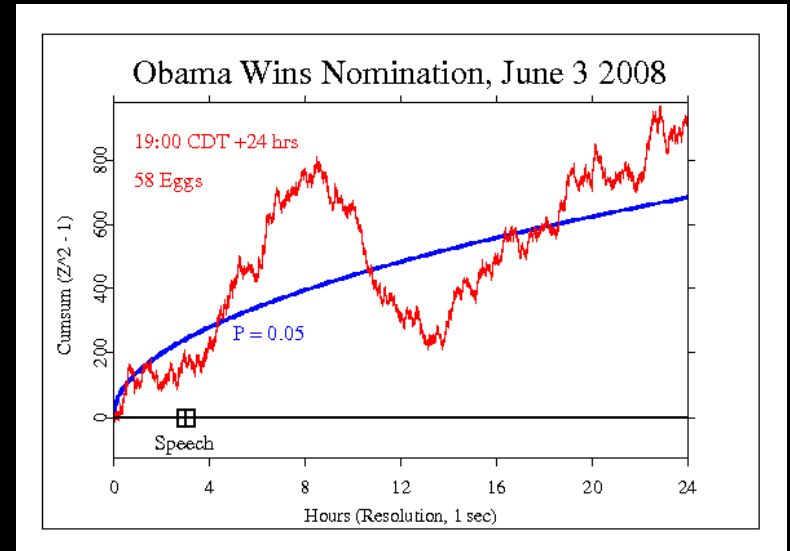
Earthquake Aug 17 1999 Near Istanbul, Turkey



Hurricane and Flooding Nov 2007, Bangladesh



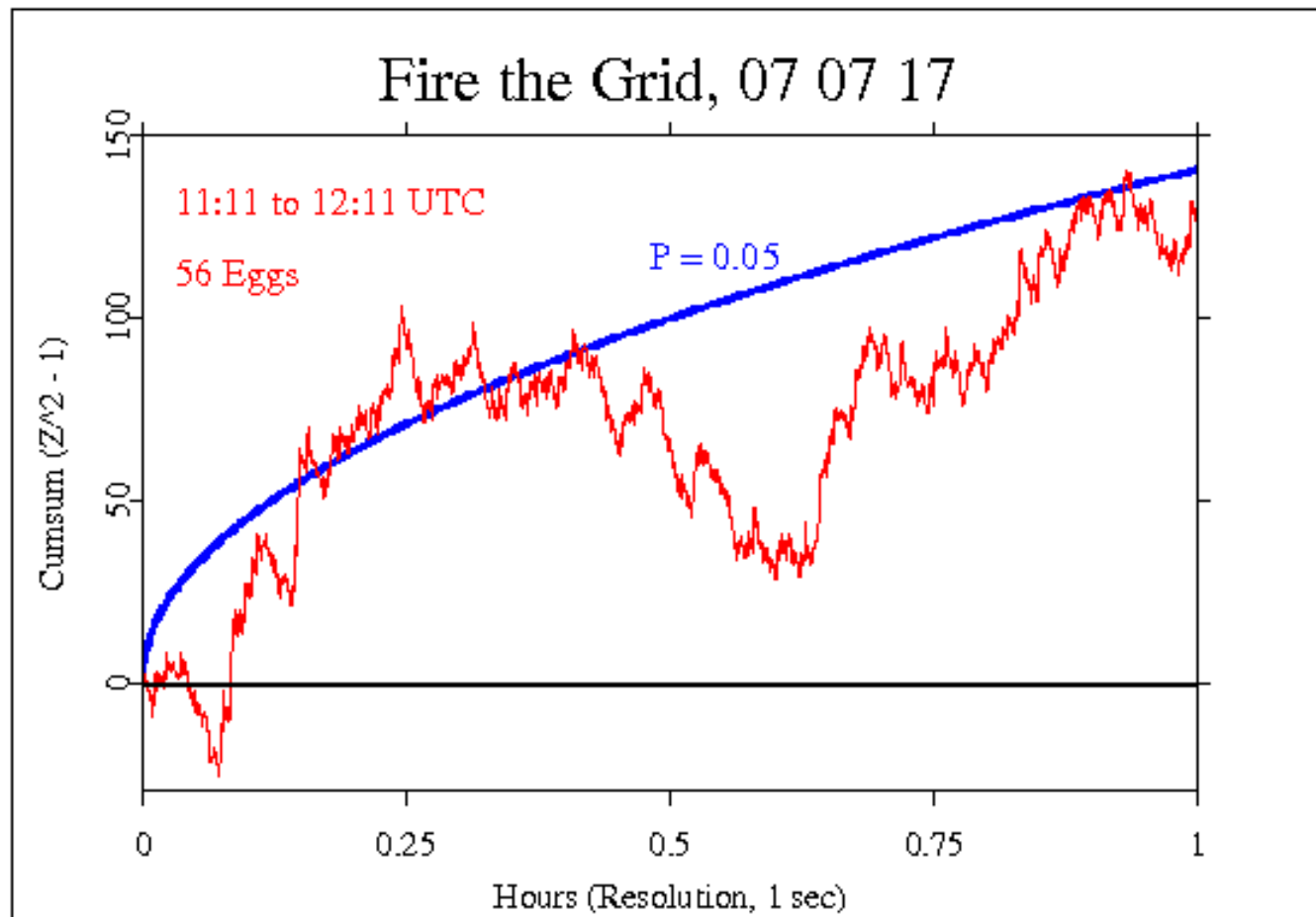
Elections 2008, Barack Obama



This is Your Invitation
To Help Heal The Earthgrid
11:11am GMT on 17:7:2007
www.firethegrid.com



Additional Example Event data



Additional Example Event data

Physical effects of collective attention at Burning Man 2013

Dean Radin, Joseph Burnett, Cassandra Vieten, Tam Hunt, Arnaud Delorme
October 3, 2013



At Burning Man this year, the attention of 65,000 minds on the playa moved into tight alignment as a highly anticipated event approached – the burning of the man. We took advantage of that event to see if the rise in mental coherence would be correlated with a rise in physical coherence, as measured by the outputs of truly random number generators (RNGs, electronic devices designed to generate maximum entropy, or randomness).

Burning Man Burn, Aug 31 2013

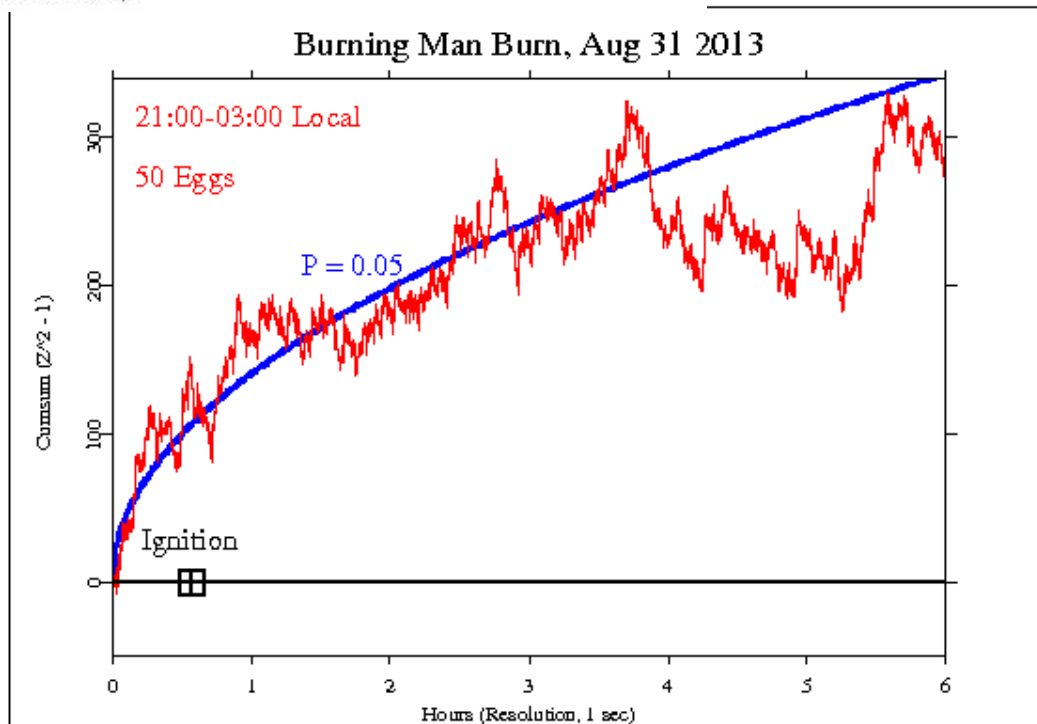


Table 1: Overall Summary of Results
August 1998 to January 2015

Category	Hypothesis	Number of Events	Stouffer Z	Probability
Rigorously Defined Events	Positive Deviation	484	7.185	3.343x10 ⁻¹³

Table 2: Results for Individual Events

red = significant
light red = predicted direction
green = opposite and significant

(Click on table headings to sort by column, courtesy Marjorie Simmons.)

Event	Description	Timeframe	Hypothesis Source	REGs	Resolution	Z-score	Probability
1	Embassy Bombings	19980807	Nelson	3	15-min	3.209	0.001
2	Omagh Bombings *	19980815	Nelson	4	15-min	-0.675	0.750
3	US Airstrikes, Afghanistan	19980820	Nelson	6	15-min	1.146	0.126
4	Swissair 111 crash	19980903	Nelson	5	15-min	1.336	0.091
5	McGwire, record homerun	19980908	Nelson	9	15-min	1.320	0.093
6	Clinton Affair Grand Jury	19980911	Nelson	6	15-min	0.387	0.349
7	Nicaragua, Casitas collapse	19981030	Nelson	5	15-min	-1.085	0.861
8	Nicaragua, Casitas flooding	19981030	Nelson	5	15-min	1.215	0.113
9	Global Peace Vigil, Twyman	19981113	Nelson	5	15-min	1.223	0.111
10	Iraq, 11th hour decision *	19981126?	Nelson	4	15-min	-0.412	0.659
11	World Peace Prayer	19981210	Nelson	7	15-min	-0.135	0.554
12	Iraq, Bombing	19981217	Nelson	7	15-min	-0.535	0.704
13	House votes impeachment	19981219	Nelson	7	15-min	-0.934	0.825
14	Christmas Eve, UTC	19981224	Etzold	8	15-min	-1.026	0.848

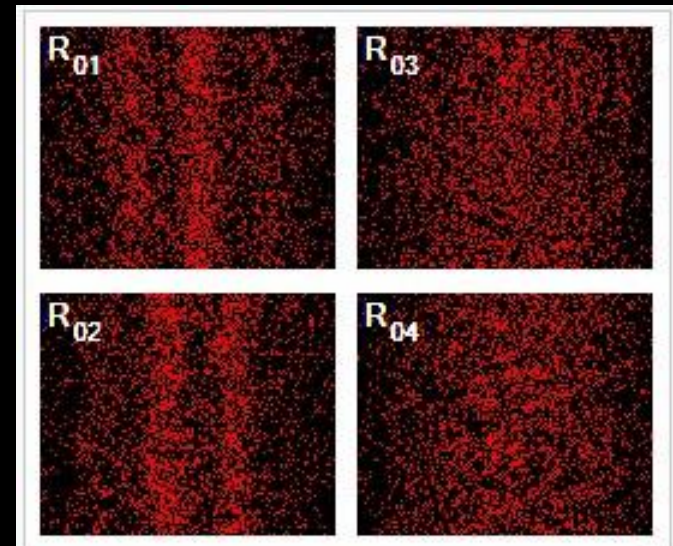
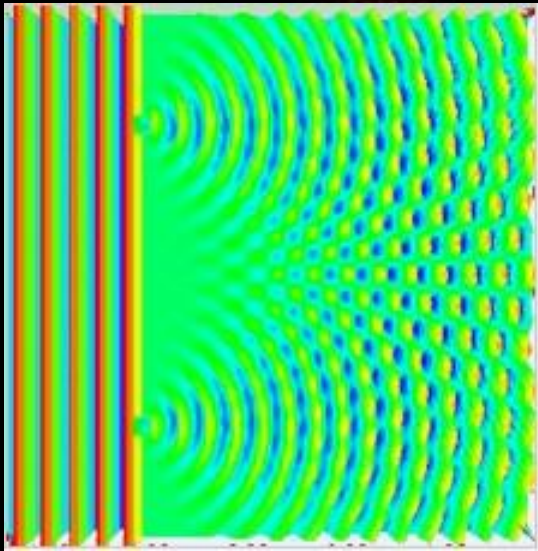
~482	Germany vs Brazil	20140708	Niclas Kuper	46	1-sec	1.324	0.093
~483	Malaysia Air Crash	20140717	Nelson	48	1-sec	-0.241	0.595
~484	Global Peace Meditation	20140808	Alan W, Annette Wolf	42	1-sec	-0.729	0.767
~485	Robin Williams Dead	20140811	Dick, Dean, Roger, others	46	1-sec	0.305	0.380
~486	Scottish Referendum	20140919	Zack Haines	42	1-sec	0.500	0.309
~487	Climate and Peace	20140921	Many people	43	1-sec	2.721	0.003
~488	Ottawa Terror	20141022	Nelson	38	1-sec	-0.071	0.528
~489	Nigeria Bombing	20141110	Nelson	39	1-sec	-1.388	0.909
~490	Sydney Siege	20141215	Anand J, Nelson	38	1-sec	-0.779	0.782
~491	Pakistani School Slaughter	20141216	Anand J, Nelson	38	1-sec	0.263	0.396
~492	Winter Solstice 2014	20141221	Nelson	38	1-sec	-0.851	0.803
~493	Air Asia 8501	20141228	Wendt	40	1-sec	0.765	0.222
~494	New Year Mean 2015	20150101	Nelson	40	1-sec	-0.173	0.586
~495	New Year Var 2015	20150101	Nelson	40	1-sec	-0.405	0.657
~496	Charlie Hebdo & Yemen	20150107	Nelson & several others	40	1-sec	1.069	0.143
~497	Rally for Unity	20150111	Nelson	40	1-sec	0.239	0.406

Quantum domain interaction – double slit experiment

Single-slit pattern



Double-slit pattern



Observation changes the quantum state of interferometry – photons act as waves, or particles.

Quantum domain interaction – double slit experiment

Volume 27 Number 1 March 2014

PHYSICS ESSAYS

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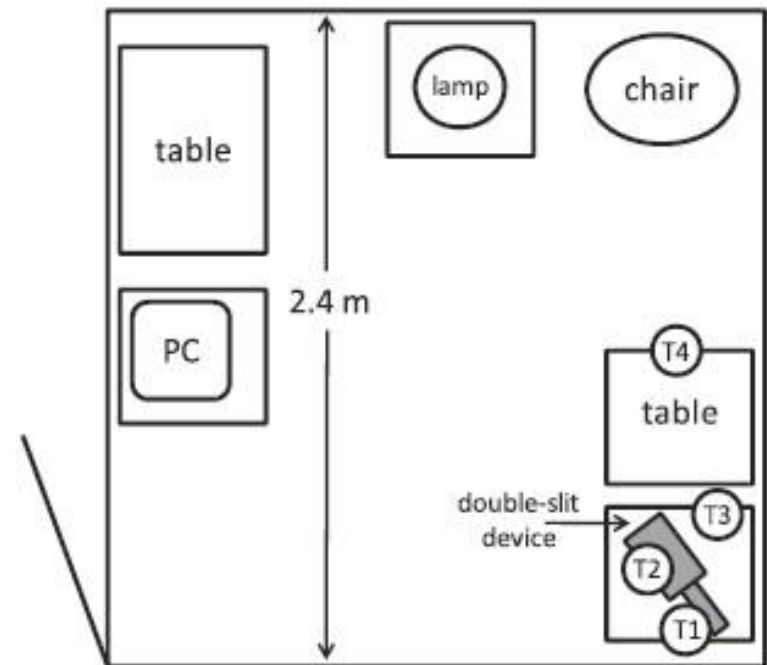


FIG. 3. Experiments were conducted inside a double-steel-walled, electromagnetically shielded chamber. The computer (PC) controlled all aspects of the experiment, including announcement of the attention-toward and attention-away instructions and acquisition of interference-pattern images from the double-slit device. In experiment 3, thermocouples were placed on the laser tube (T1), on the double-slit housing (T2), near the housing (T3), and about 1.5 m in front of the participant (T4).

Consciousness and the double-slit interference pattern: Six experiments

Dean Radin,^{1,a)} Leena Michel,¹ Karla Galdamez,¹ Paul Wendland,² Robert Rickenbach,³ and Arnaud Delorme⁴

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(Received 9 April 2011; accepted 25 January 2012; published online 16 May 2012)

Abstract: A double-slit optical system was used to test the possible role of consciousness in the collapse of the quantum wavefunction. The ratio of the interference pattern's double-slit spectral power to its single-slit spectral power was predicted to decrease when attention was focused toward the double slit as compared to away from it. Each test session consisted of 40 counterbalanced attention-toward and attention-away epochs, where each epoch lasted between 15 and 30 s. Data contributed by 137 people in six experiments, involving a total of 250 test sessions, indicate that on average the spectral ratio decreased as predicted ($z=-4.36$, $p=6\times 10^{-6}$). Another 250 control sessions conducted without observers present tested hardware, software, and analytical procedures for potential artifacts; none were identified ($z=0.43$, $p=0.67$). Variables including temperature, vibration, and signal drift were also tested, and no spurious influences were identified. By contrast, factors associated with consciousness, such as meditation experience, electrocortical markers of focused attention, and psychological factors including openness and absorption, significantly correlated in predicted ways with perturbations in the double-slit interference pattern. The results appear to be consistent with a consciousness-related interpretation of the quantum measurement problem. © 2012 Physics Essays Publication. [DOI: 10.4006/0836-1398-25.2.157]

Quantum domain interaction – double slit experiment

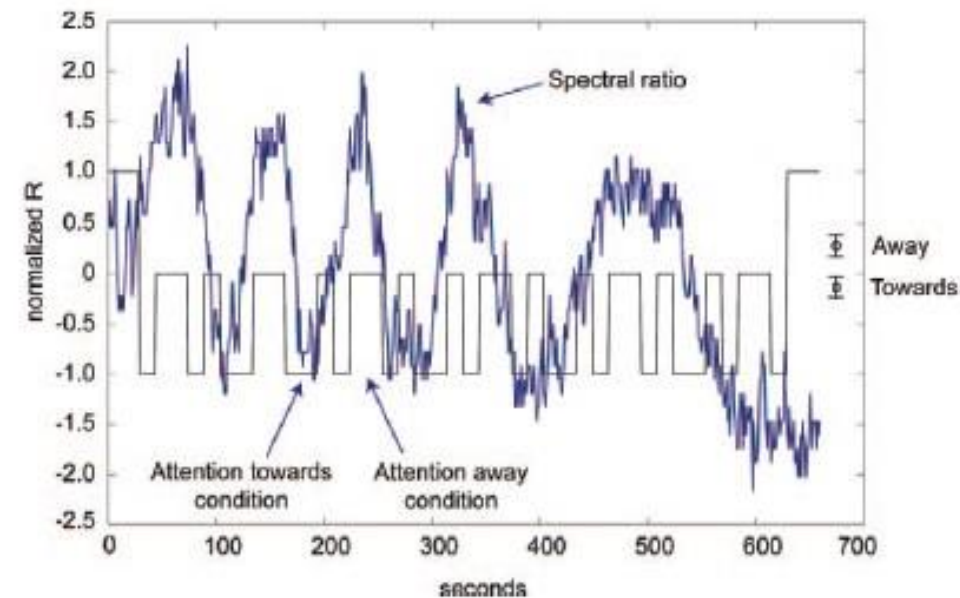


FIG. 4. (Color online) Example of the data for the normalized spectral ratio R recorded in one test session. Attention assignments are plotted for illustrative purposes as the values $+1$ for pre- and postsession baseline periods, 0 for attention away, and -1 for attention toward. On the right side of the graph the means for R by condition are shown, along with one standard error of the mean error bars. Normalizing the signal exaggerates its apparent variance; this signal varied from the grand mean measured over all 35 sessions by an average of 0.5% .

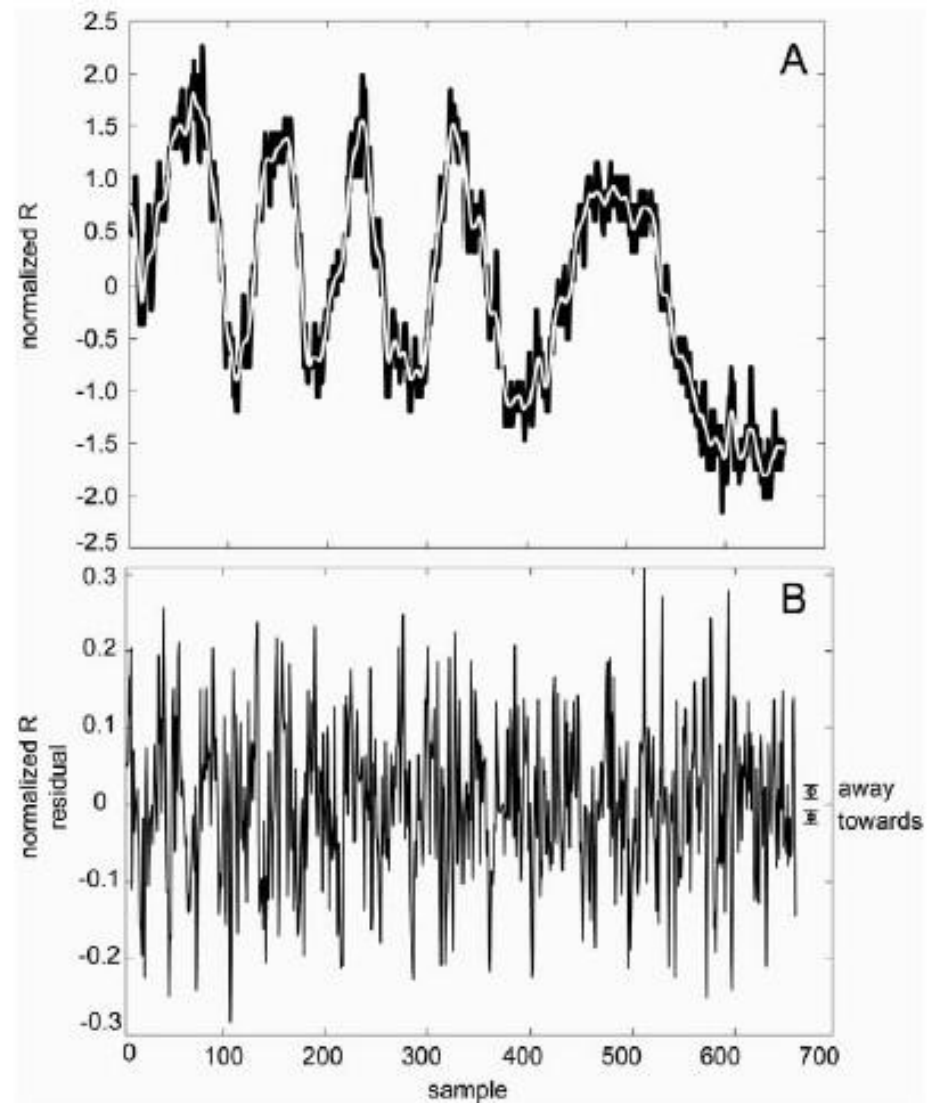


FIG. 6. (A) Original R signal (in black) and 15-sample smoothed fit (in white). (B) Difference between curves in part (A); means and error bars on the right side indicate that the attention-toward mean residual remains significantly below the attention-away mean residual.

Quantum domain interaction – “delayed thought” vs perceived photon activity experiment

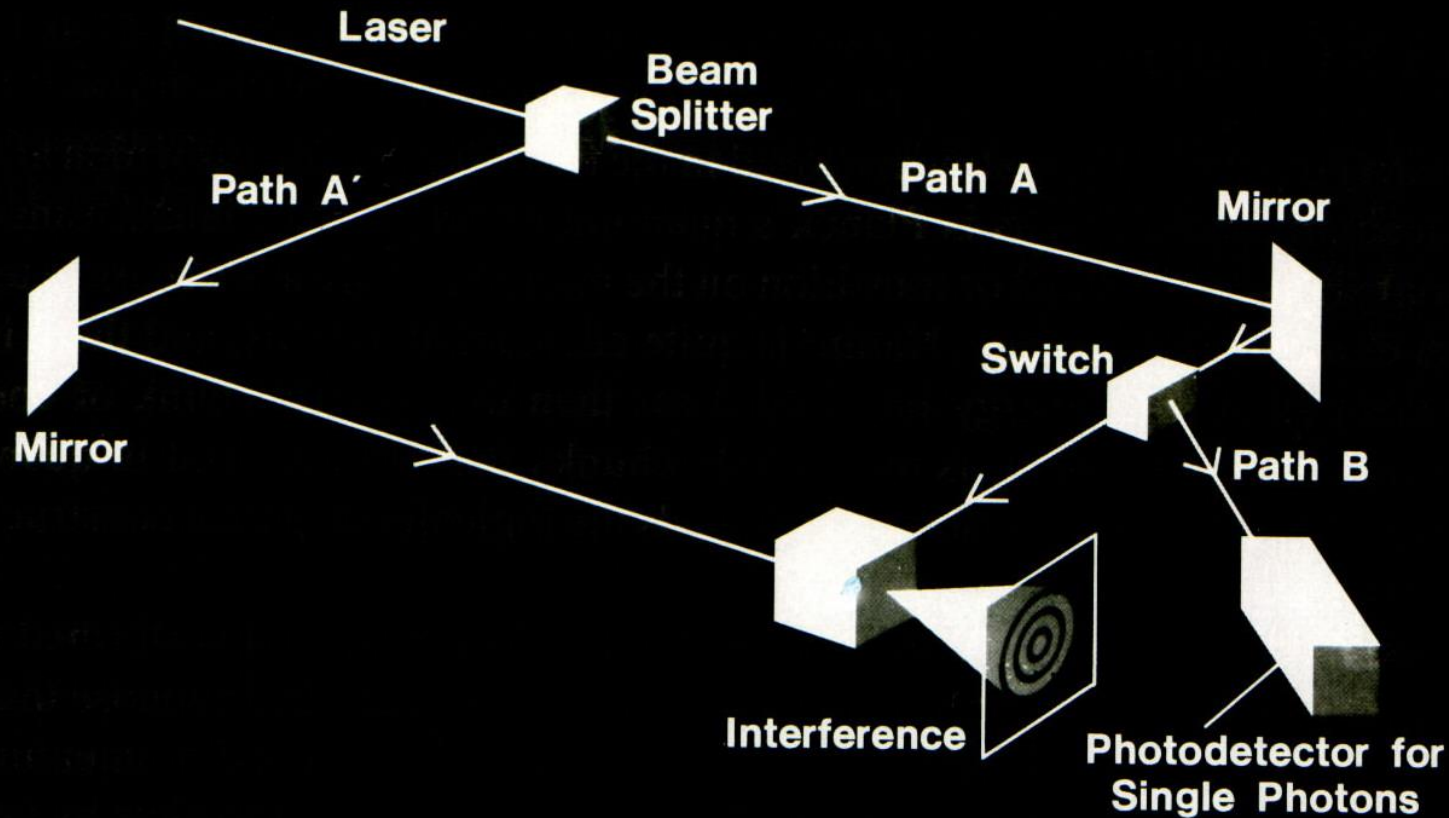


FIGURE 12. A delayed-choice experiment that has been carried out in the laboratory by groups at the University of Maryland and the University of Munich.

Is Quantum Mechanics Controlling Your Thoughts?

Science's weirdest realm may be responsible for photosynthesis, our sense of smell, and even consciousness itself.

by Mark Anderson

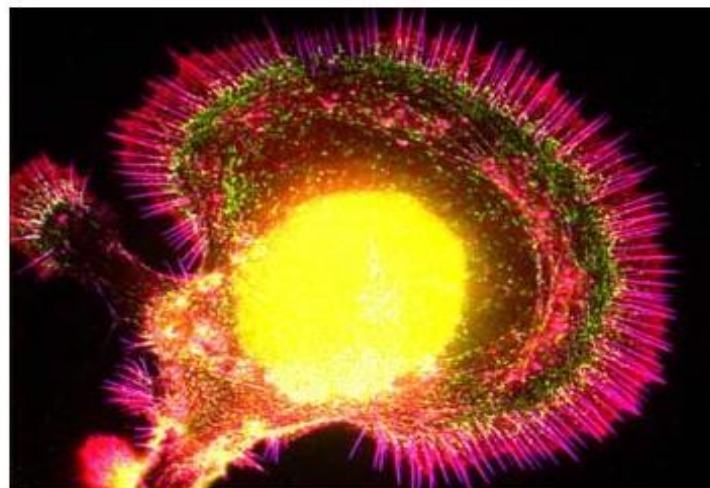
From the **February 2009 issue**, published online January 13, 2009

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A A A



A sea slug neuron may tap quantum forces to process information. In humans quantum physics may be integral to thought.

Dylan Burnette/Olympus Bioscapes Imaging Competition

key step in [photosynthesis](#), the process by which plants and some microorganisms convert water, carbon dioxide, and sunlight into oxygen and carbohydrates. More efficient by far in its ability to convert energy than any operation devised by man, this cascade helps drive almost all life on earth. Remarkably, photosynthesis appears to derive its ferocious efficiency not from the familiar physical laws that govern the visible world but from the seemingly exotic rules of [quantum mechanics](#), the physics of the subatomic world. Somehow, in every green plant or photosynthetic bacterium, the two disparate realms of physics not only meet but mesh harmoniously. Welcome to the strange new world of quantum biology.

[Graham Fleming](#) sits down at an L-shaped lab bench, occupying a footprint about the size of two parking spaces. Alongside him, a couple of off-the-shelf lasers spit out pulses of light just millionths of a billionth of a second long. After snaking through a jagged path of mirrors and lenses, these minuscule flashes disappear into a smoky black box containing proteins from green sulfur bacteria, which ordinarily obtain their energy and nourishment from the sun. Inside the black box, optics manufactured to billionths-of-a-meter precision detect something extraordinary: Within the bacterial proteins, dancing electrons make seemingly impossible leaps and appear to inhabit multiple places at once.

Peering deep into these proteins, Fleming and his colleagues at the University of California at Berkeley and at Washington University in St. Louis have discovered the driving engine of a

On the face of things, quantum mechanics and the biological sciences do not mix. Biology focuses on larger-scale processes, from molecular interactions between proteins and DNA up to the behavior of organisms as a whole; quantum mechanics describes the often-strange nature of electrons, protons, muons, and quarks—the smallest of the small. Many events in biology are considered straightforward, with one reaction begetting another in a linear, predictable way. By contrast, quantum mechanics is fuzzy because when the world is observed at the subatomic scale, it is apparent that particles are also waves: A dancing electron is both a tangible nugget and an oscillation of energy. (Larger objects also exist in particle and wave form, but the effect is not noticeable in the macroscopic world.)



Condensed Matter > Disordered Systems and Neural Networks

Quantum biology on the edge of quantum chaos

Gabor Vattay, Stuart Kauffman, Samuli Niiranen

(Submitted on 29 Feb 2012)

We give a new explanation for why some biological systems can stay quantum coherent for long times at room temperatures, one of the fundamental puzzles of quantum biology. We show that systems with the right level of complexity between chaos and regularity can increase their coherence time by orders of magnitude. Systems near Critical Quantum Chaos or Metal-Insulator Transition (MIT) can have long coherence times and coherent transport at the same time. The new theory tested in a realistic light harvesting system model can reproduce the scaling of critical fluctuations reported in recent experiments. Scaling of return probability in the FMO light harvesting complex shows the signs of universal return probability decay observed at critical MIT. The results may open up new possibilities to design low loss energy and information transport systems in this Poised Realm hovering reversibly between quantum coherence and classicality.

Subjects: **Disordered Systems and Neural Networks (cond-mat.dis-nn)**; Molecular Networks (q-bio.MN); Quantum Physics (quant-ph)

Cite as: **arXiv:1202.6433 [cond-mat.dis-nn]**
(or **arXiv:1202.6433v1 [cond-mat.dis-nn]** for this version)

Submission history

From: Gabor Vattay [[view email](#)]

[v1] Wed, 29 Feb 2012 04:15:22 GMT (566kb,D)

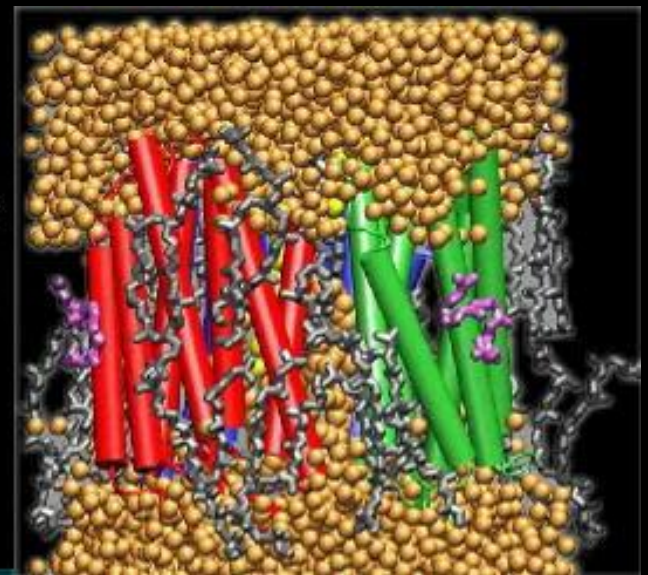
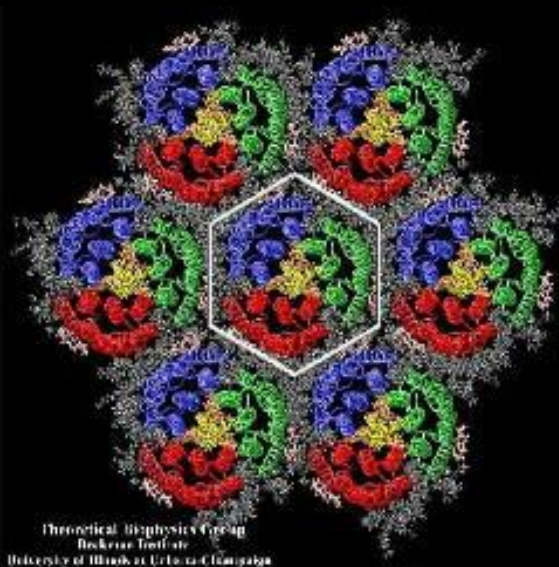
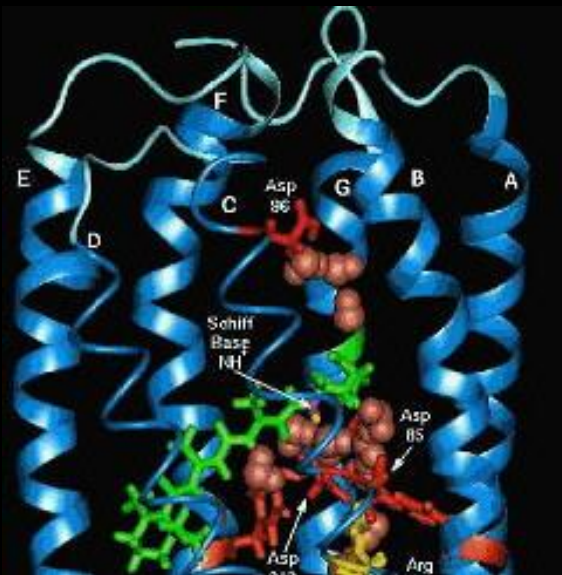
Nanostructured biomaterials as a dynamic interface for quantum entanglement interaction

NIH CENTER FOR MACROMOLECULAR MODELING & BIOINFORMATICS

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

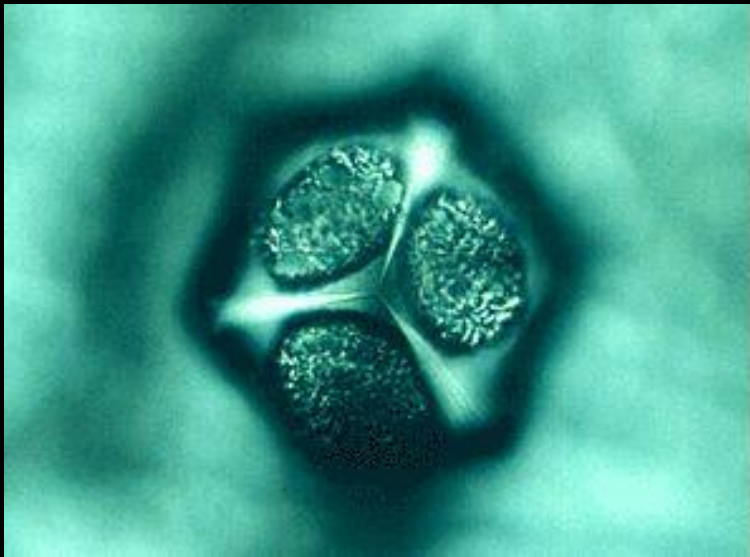
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Rhodopsins, Cryptochrome, other nanobiological material systems



Nanostructured biomaterials as a dynamic interface for quantum entanglement interaction

Crystallized protein structures



Rhodopsins, Cryptochrome, other nanobiological material systems

Quantum Entanglement . . . In Biology

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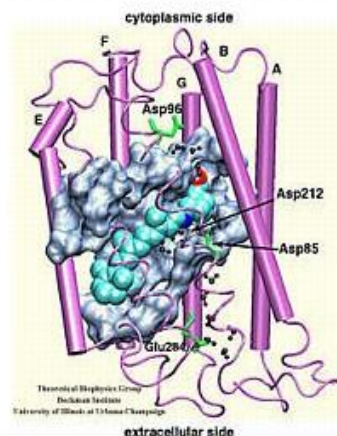
Research Projects - Quantum Biology

Many important biological processes taking place in cells are driven and controlled by events that involve electronic degrees of freedom and, therefore, require a quantum mechanical description. An important example are enzymatically catalyzed, cellular biochemical reactions. Here, bond breaking and bond formation events are intimately tied to changes in the electronic degrees of freedom. Key events during photosynthesis in plants and energy metabolism in eucaryotes also warrant a quantum mechanical description - from the absorption of light in the form of photons by the photosynthetic apparatus to electron transfer processes sustaining the electrochemical membrane potential. Because of the importance of sensing light to both plants (for regulating vital functions) and animals (for vision), the interaction between light and biological photoreceptors is widespread in nature, and also requires a quantum mechanical description. A prime example is the protein rhodopsin which is present in the retina of the human eye and plays a key role in vision. Our computational tool are combined quantum mechanical/molecular (QM/MM) simulations, that allow to combine an electronic level description of the active region with a classical model of the environment provided by the remainder of the biomolecular system and solvent. This allows us to study the electronic level processes underlying these systems in their natural cellular environment.

Spotlight - Quantum Dynamics of Photoreceptors

The all-*trans* retinal protonated Schiff base (RSPB) is the chromophore of bacteriorhodopsin (bR), a transmembrane protein that acts as a light-driven proton pump in *Halobacterium salinarium*, converting light energy to a proton gradient. Upon absorption of light the chromophore undergoes a photoisomerization process (all-*trans* -> 13-*cis*) that eventually provides the driving force for the translocation of protons. This elementary photoisomerization process proceeds on multiple coupled potential energy surfaces and we have modeled it using a formally exact quantum-mechanical procedure: the full multiple spawning method. Currently, we are studying the first excited electronic state of the chromophore using an isolated retinal analog model and *ab initio* CASSCF methods. The characterization of the first excited state (minima and conical intersections associated with isomerization around different double bonds) will enable us to extend and improve the aforementioned quantum-mechanical studies of the photoreaction dynamics in the protein.

All Spotlights



Quantum Biology - Retina

Clinical & Experimental Ophthalmology



RANZCO  The Royal Australian and New Zealand College of Ophthalmologists

Clinical and Experimental Ophthalmology 2014; 42: 582–589 doi: 10.1111/ceo.12373

Review

Quantum biology of the retina

Paul Ikkan Sia MBChB,¹ André N Luiten PhD,² Thomas M Stace PhD,³ John PM Wood DPhil¹ and Robert J Casson DPhil FRANZCO¹

¹South Australian Institute of Ophthalmology, Hanson Institute, ²Institute for Photonics and Advanced Sensing (IPAS), School of Chemistry and Physics, University of Adelaide, Adelaide, South Australia, and ³School of Mathematics and Physics, University of Queensland, Brisbane, Queensland, Australia

Abstract

The emerging field of quantum biology has led to a greater understanding of biological processes at the microscopic level. There is recent evidence to suggest that non-trivial quantum features such as entanglement, tunnelling and coherence have evolved in living systems. These quantum features are particularly evident in supersensitive light-harvesting systems such as in photosynthesis and photoreceptors. A biomimetic strategy utilizing biological quantum phenomena might allow new advances in the field of quantum engineering, particularly in quantum information systems. In addition, a better understanding of quantum biological features may lead to novel medical diagnostic and therapeutic developments. In the present review, we discuss the role of quantum physics in biological systems with an emphasis on the retina.

ABSTRACT

The emerging field of quantum biology has led to a greater understanding of biological processes at the microscopic level. There is recent evidence to suggest that non-trivial quantum features such as entanglement, tunnelling and coherence have evolved in living systems. These quantum features are particularly evident in supersensitive light-harvesting systems such as in photosynthesis and photoreceptors. A biomimetic strategy utilizing biological quantum phenomena might allow new advances in the field of quantum engineering, particularly in quantum information systems. In addition, a better understanding of quantum biological features may lead to novel medical diagnostic and therapeutic developments. In the present review, we discuss the role of quantum physics in biological systems with an emphasis on the retina.

Key words: light signal transduction, photon, photoreceptor, quantum theory, retina.

INTRODUCTION

Quantum mechanics (QM) provides a more accurate theory to describe the behaviour of matter and energy than the classical theories that preceded it. The divergence between classical and quantum behaviour is most easily seen at very small scales.

QM is based on four key ideas: (1) all entities within the universe (e.g. a single particle, a human or even a galaxy) can only be properly described

with the aid of a quantum 'wave function'. For the simple situation of a single particle, the square of the wave function at any location in the universe can be interpreted as the likelihood of finding the particle at that location; (2) that we have a tool called the Schrödinger equation, which allows us to evolve these wave functions in time; (3) that many key physical quantities, including energy and angular momentum, come in discrete units known as quanta; (4) that at the instant of observation (or measurement), an entity yields a certain result (the wave function is said to 'collapse'), and thus the probabilistic wave function is no longer needed to describe the system.

The consequences of this inherently probabilistic description of the universe are manifold, but they imply: (a) that matter and energy behave in either wave-like or particle-like fashions depending on the type of observation; (b) that some properties of an entity are not knowable simultaneously with arbitrary accuracy – most famously the position and momentum of a particle; (c) objects can be in more than one state (e.g. location or energy) simultaneously – termed quantum superposition – which is eliminated when the system is measured.

These key principles of QM can lead to exotic consequences. Quantum *superposition* is well illustrated by Schrödinger's thought experiment involving a cat inside a closed box in which the cat's health has been tied to a radioactive decay event. According to QM, the cat exists in a 'quantum superposition of states' until the wave function collapses. Schrödinger initially proposed this in an attempt

Phototransduction

Phototransduction is a process by which light energy is converted to electrical and chemical signals in the photoreceptors (Fig. 1). The human photoreceptors are packed densely in the outermost layer of the neural retina. The long axis of the rods and cones is aligned along the radii of the eye to maximize light collection.[25]

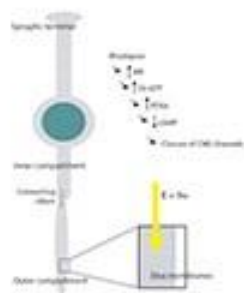


Figure 1. Schematics of rod cell response to light. cGMP, cyclic guanosine monophosphate; CNG, cyclic-nucleotide gated; Gt-GTP, G-protein guanosine triphosphate complex; MII, metarhodopsin II; PDE6, cGMP phosphodiesterase.

Each photoreceptor is separated into a distinct outer and inner segment. The biochemical processes of phototransduction are limited to the outer segment. The outer segment has disc membranes that contain a different protein composition and a much higher concentration of photon receptor proteins compared with the cell's plasma membrane. In rods, the disc membranes give an appearance of sealed vesicles, which are stacked up along the long axis of the rod's outer segment and surrounded by cytoplasm and plasma membrane. The cones have a single membrane system where there are multiple invaginations of the plasma membrane in the outer segment, resembling disc membranes in rods.[25]

The inner segment is the site of oxidative metabolism and active biosynthesis. The outer and inner segments are connected by a very thin cilium, consisting of microtubules (MTs) surrounded by a thin layer of cytoplasm and plasma membrane. Biochemical products are transported through this cilium from the inner segment to the outer segment for phototransduction. Photon particles captured in the outer segment will also pass through the inner segment and this bridging cilium. There is a constant passive communication of membrane potential between the inner and outer segments. When changes in membrane potential are transmitted from the outer segment through to the synaptic terminal, neurotransmitter release is altered, resulting in signalling of the higher order neurons located at the inner layers of retina.[25]

Quantum Biology - Retina

Quantum Consciousness and the Retina

The nature of human consciousness remains a deep mystery and is a subject of ongoing research. A number of theories have been proposed to 'explain' consciousness. One such theory, which remains highly controversial, but deserves discussion, asserts that non-algorithmic phenomena exhibited by the human mind are explained by quantum computer processes. This so-called orchestrated 'objective reduction' theory was proposed by Hameroff and Penrose in the 1990s. They hypothesize that the MTs are the anatomical substrate for orchestrated objective reduction in the brain.[\[49-51\]](#)

MTs, shaping the cytoskeleton of eukaryotic cells, are cylindrical polymers that self-assemble from tubulin proteins. MTs, such as centrioles and cilia, help to establish cell shape, direct growth and organize specific cell functions.[\[49\]](#) Centrioles are composed of nine sets of MT triplets, forming a shape of a cylinder. Albrecht-Buehler has shown that fibroblast cells communicate with each other via near infrared light and that their centrioles act as optical detectors.[\[52, 53\]](#) As centrioles play a major role in cell division and perform mirror-like activities with high precision, the possibility of quantum entanglement mediated by the quantum optical effects between centrioles has been suggested. Interestingly, cilia have a similar structure to centrioles as they are cylindrical in shape and consist of nine sets of MT doublets. Cilia have also been established as optical detectors in single cell organisms and primitive visual systems.[\[51\]](#)

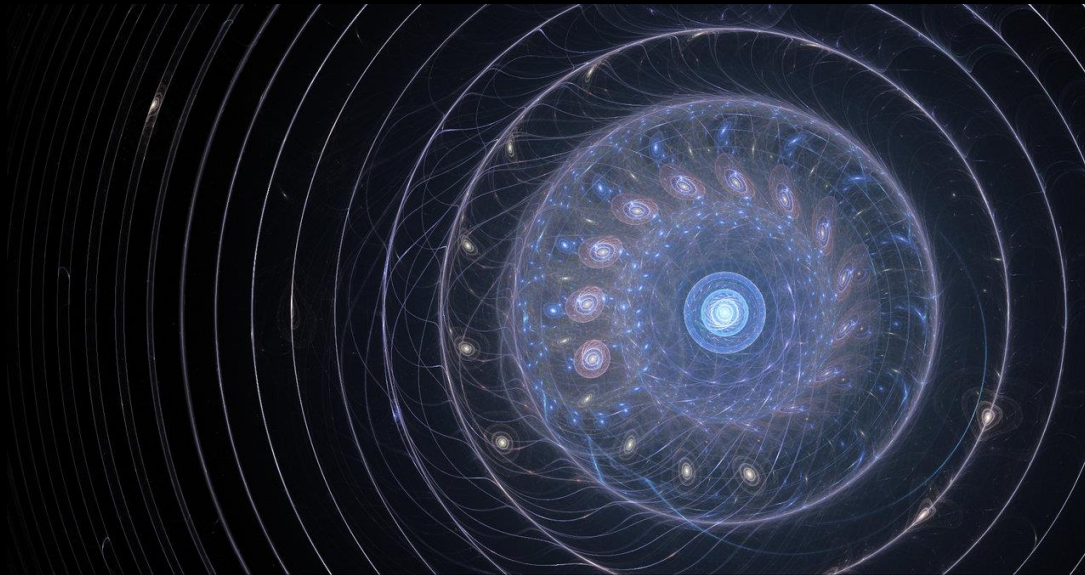
The existence of quantum coherence in MTs is supported by a recently reported association between certain frequencies of MT vibrations under biological conditions and electroencephalographic readings as a function of consciousness.[\[54, 55\]](#) Quantum superposition could conceivably occur in MTs via quantum mechanical forces that act on individual tubulins. This would allow quantum communication between entangled tubulins in the same MT or neighbouring MTs. Hameroff and Penrose believe that the coherent superpositions of tubulins achieve decoherence or 'self-collapse' at the cerebral cortex and each of these events corresponds to a 'moment of conscious experience'.[\[49-51, 54, 55\]](#)

Evolution into the Next Paradigm -

A series of evolutionary models . . .

Evolution tends to be a trauma induced process.

If the periodicity and amplitude of the encountered trauma cycles do not exceed the system capacity to respond, the system will evolve to a more robust form of existence.

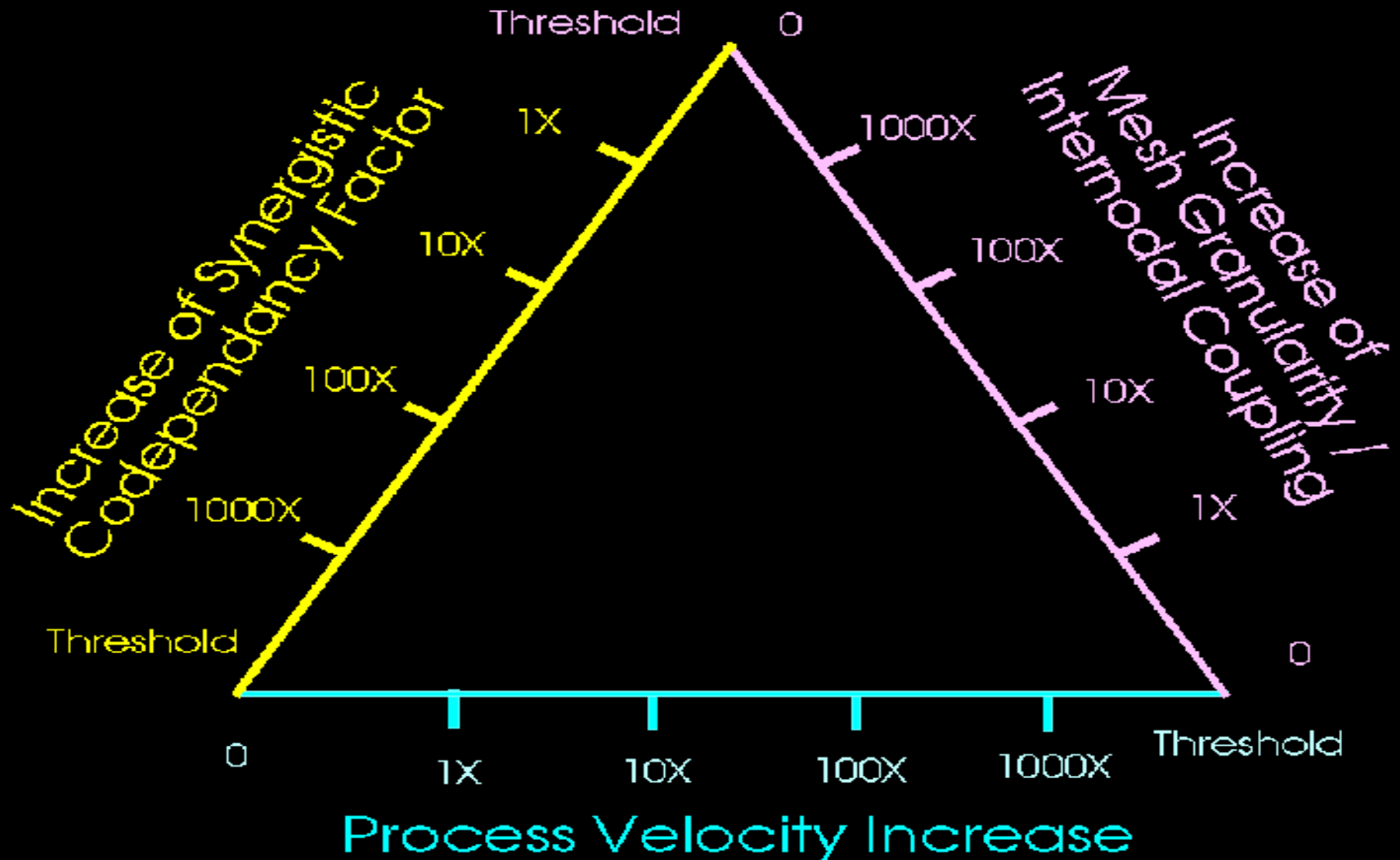


We are Biophysical Manifestations of Entities Dwelling within the Ubiquitous “Quantum Jello” Manifold –

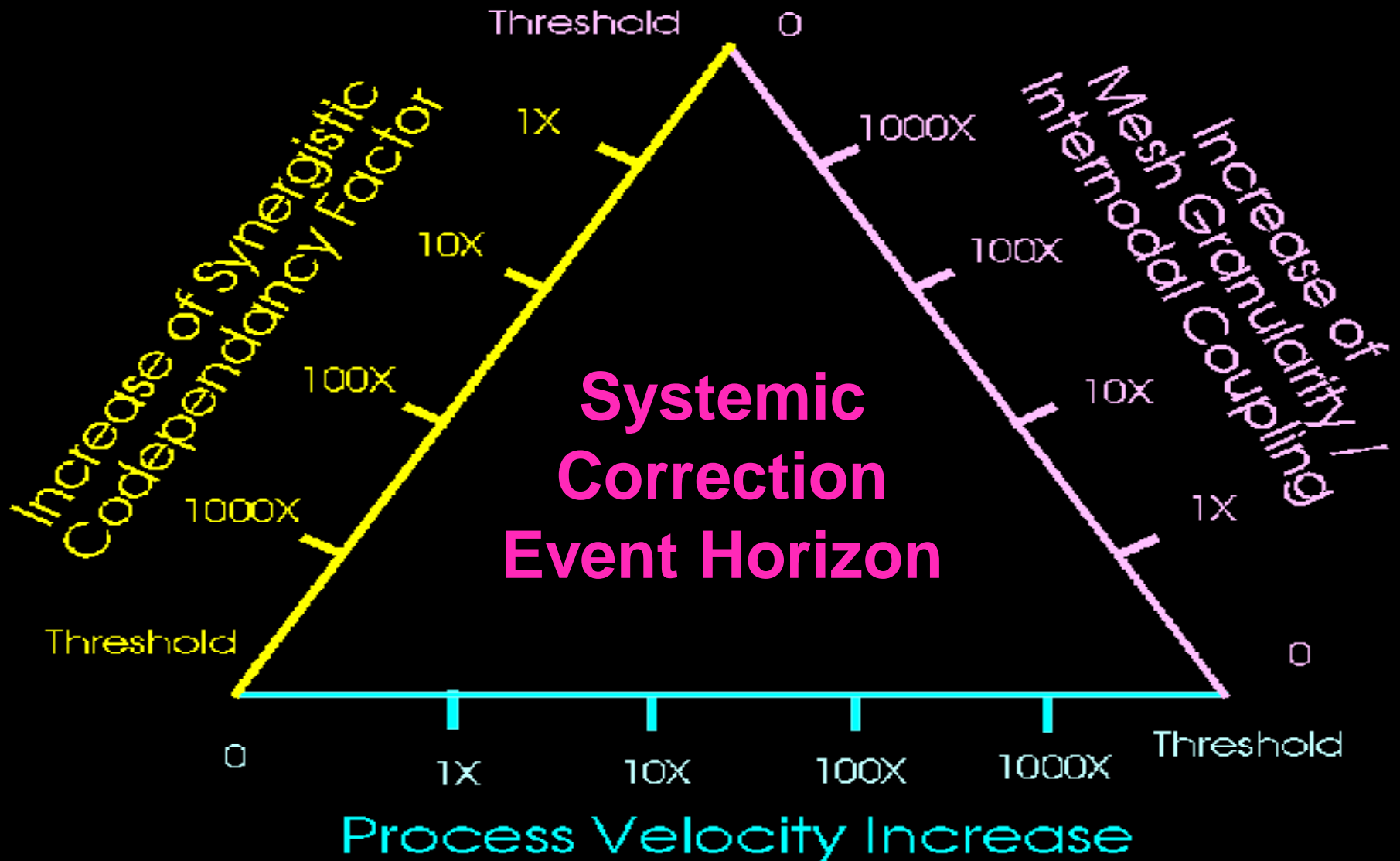
- All Living Things are Interconnected into an non-localized Operational Ecology
- This Planet as a “Living System” is Interconnected into a Cosmological Ecology



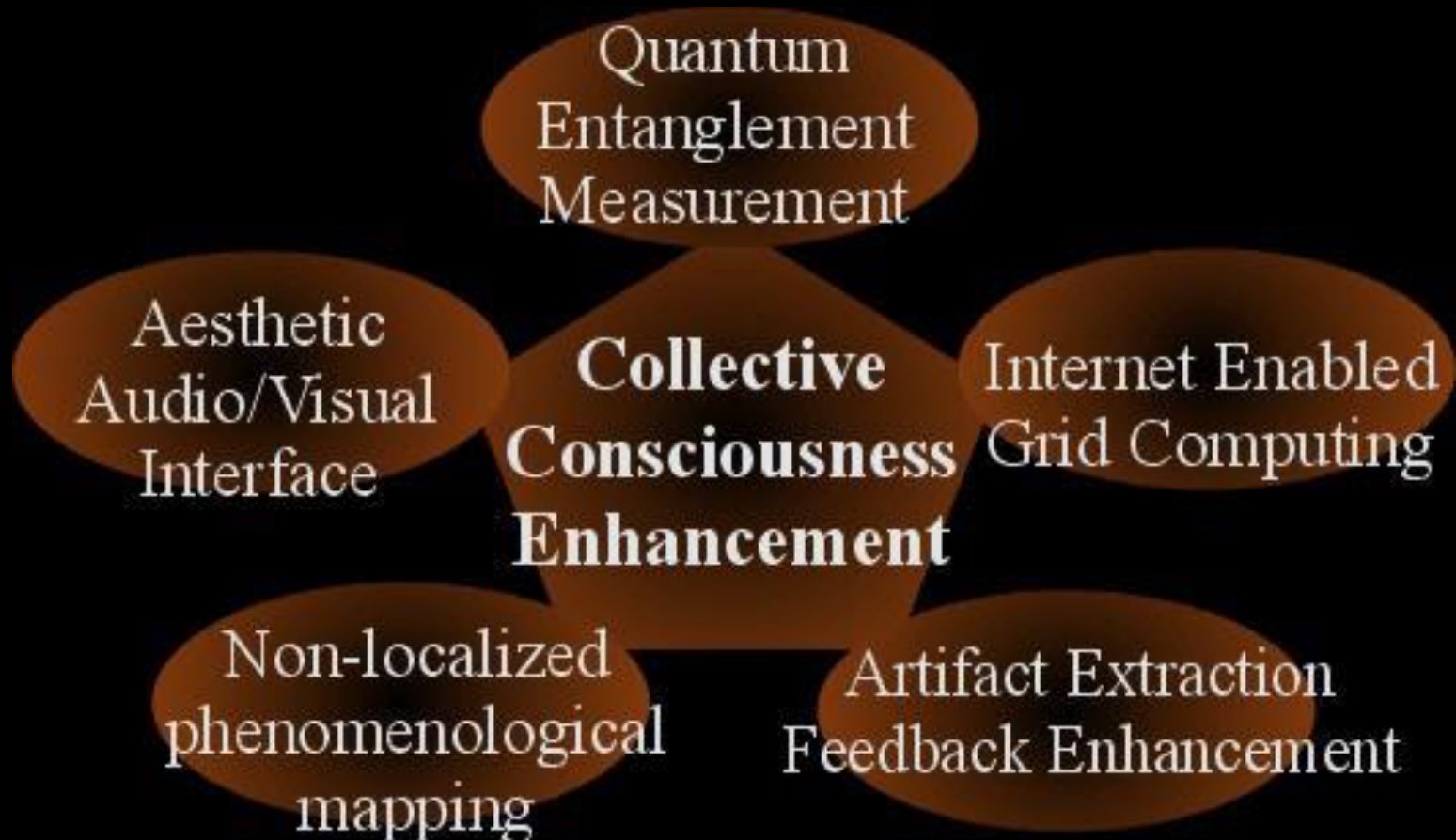
Convergence Syndrome Triad



Convergence Syndrome Triad



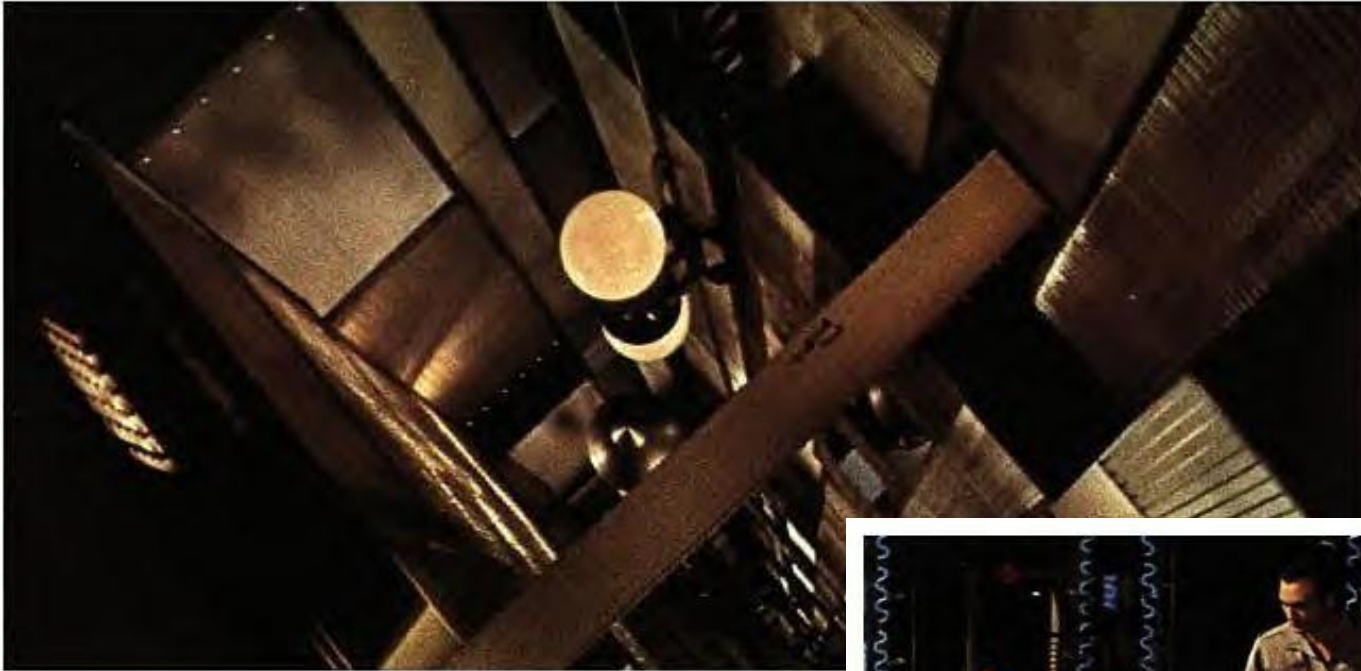
Focussed intentionality amplified and tuned as an instrument of influence for “spawning” the history of our future – system architecture overview



Info Bio Nano Cogno QTech Convergence – on the Forbidden Planet



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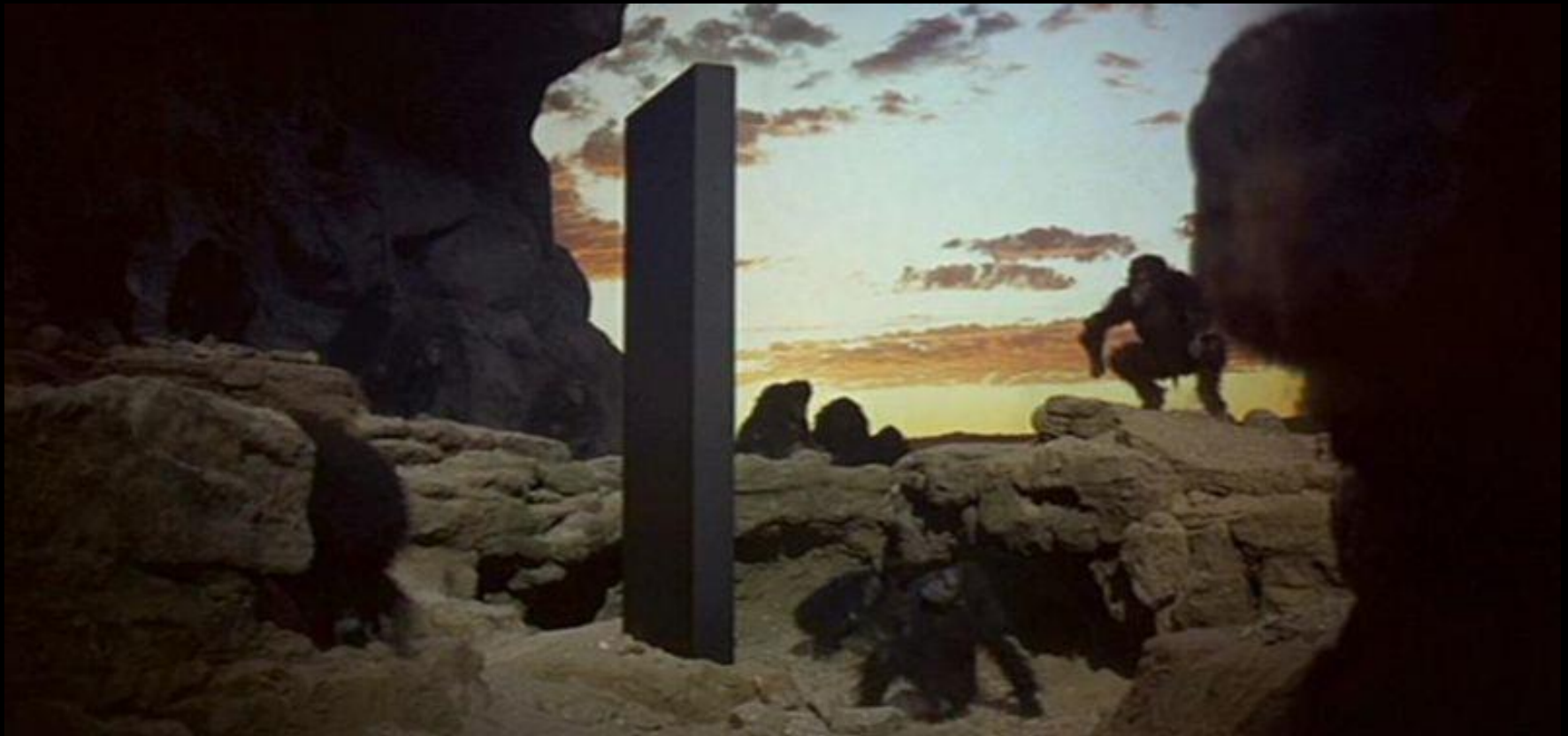


Ultimate failure point – “monsters from the Id”



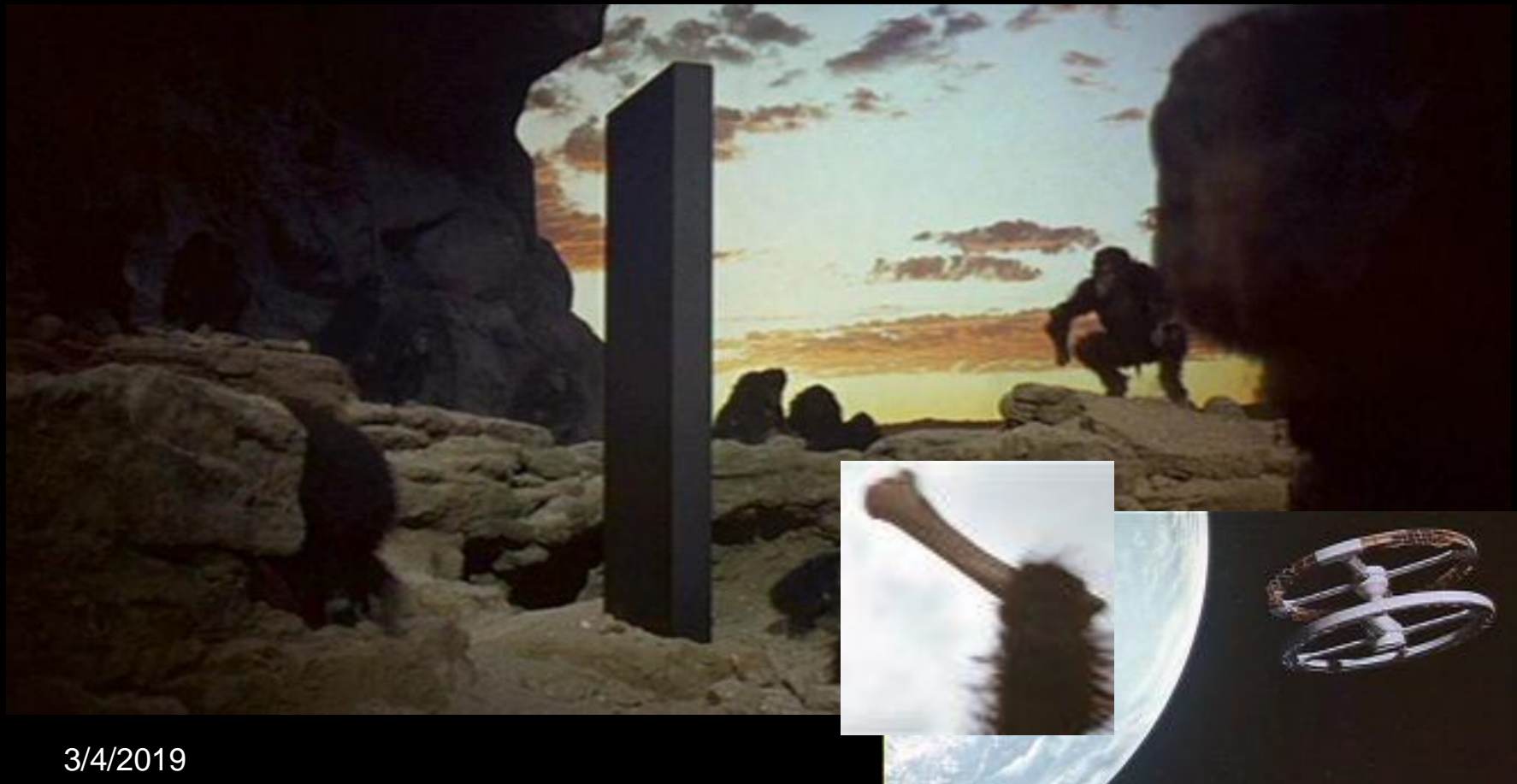
Think Different – Think *Holographic*

The Evolutionary Evenstream . . .



Think Different – Think *Holographic*

The Evolutionary Evenstream . . .

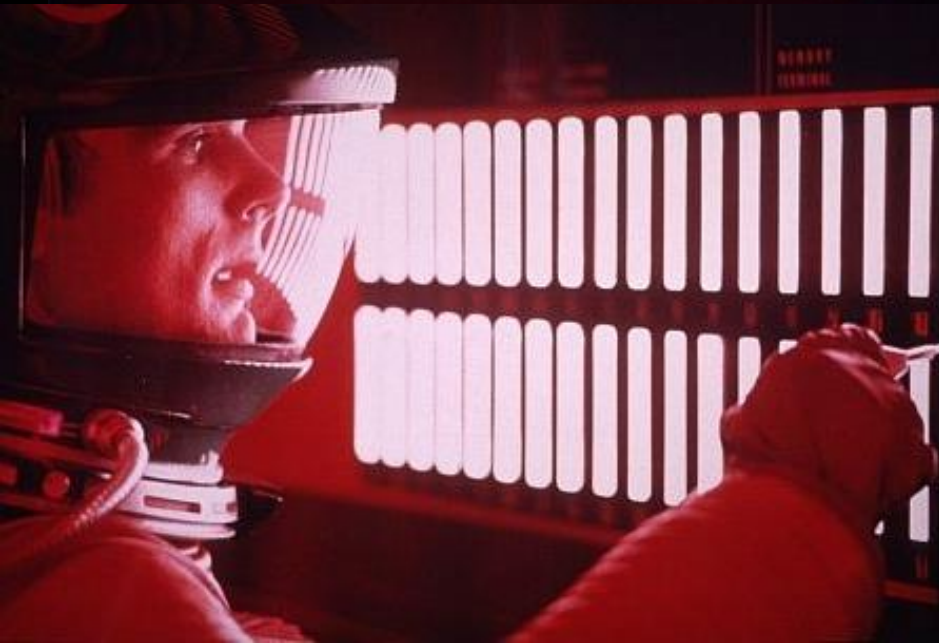


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Think Different – Think *Holographic*

The Evolutionary Evenstream . . .

**LIFE FUNCTIONS
TERMINATED**

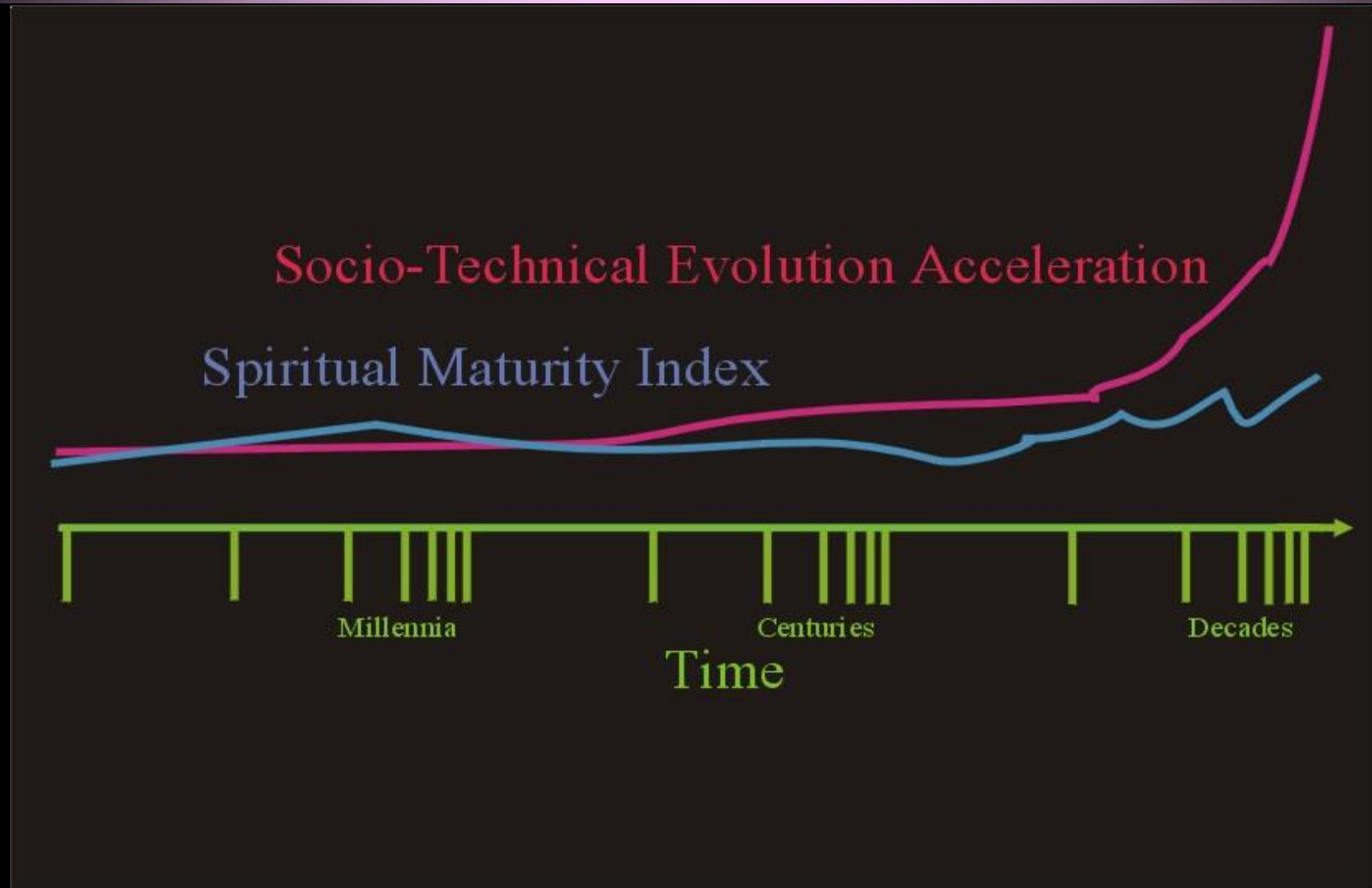


Cultural Imperatives of the Evolutionary Eventstream in the Beginning, the End

- 65+ indigenous cultures on 5 continents have embedded in their mythos prophecies foretelling “something of great significance” that will occur within the 1st 3rd of the current 21st century.
- The question beckons – **why?** Or perhaps, from **who**, or **what?**
- Thesis =



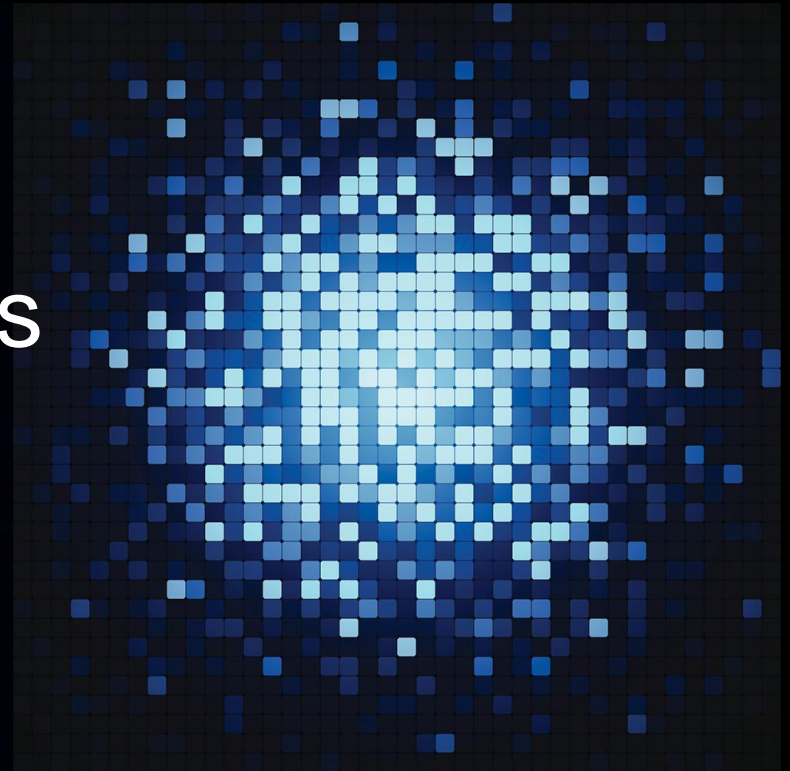
Approaching the Evolutionary Eventhorizon Threshold



Quantum Biology . . . Are we Ready?



Finis



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Quantum Biology - An emerging field of study that focuses on the quantum properties of biological systems.

Neurons alone aren't sufficiently complex to explain consciousness and provide a computational model for thought – Dr Stuart Hameroff



Nature **446**, 782–786 (12 April 2007) | doi:10.1038/nature05678; Received 13 October 2006; Accepted 14 February 2007

Evidence for wavelike energy transfer through quantum coherence in photosynthetic systems

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2. Physical Biosciences Division, Lawrence Berkeley National Laboratory, Berkeley, California 94720, USA

3. Department of Biology,

4. Department of Chemistry, Washington University, St Louis, Missouri 63130, USA

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Correspondence to: Graham R. Fleming^{1,2} Correspondence and requests for materials should be addressed to G.R.F. (Email: grfleming@lbl.gov).

Photosynthetic complexes are exquisitely tuned to capture solar light efficiently, and then transmit the excitation energy to reaction centres, where long term energy storage is initiated. The energy transfer mechanism is often described by semiclassical models that invoke ‘hopping’ of excited-state populations along discrete energy levels^{1,2}. Two-dimensional Fourier transform electronic spectroscopy^{3,4,5} has mapped⁶ these energy levels and their coupling in the Fenna–Matthews–Olson (FMO) bacteriochlorophyll complex, which is found in green sulphur bacteria and acts as an energy ‘wire’ connecting a large peripheral light-harvesting antenna, the chlorosome, to the reaction centre^{7,8,9}. The spectroscopic data clearly document the dependence of the dominant energy transport pathways on the spatial properties of the excited-state wavefunctions of the whole

bacteriochlorophyll complex^{6,10}. But the intricate dynamics of quantum coherence, which has no classical analogue, was largely neglected in the analyses—even though electronic energy transfer involving oscillatory populations of donors and acceptors was first discussed more than 70 years ago¹¹, and electronic quantum beats arising from quantum coherence in photosynthetic complexes have been predicted^{12,13} and indirectly observed¹⁴. Here we extend previous two-dimensional electronic spectroscopy investigations of the FMO bacteriochlorophyll complex, and obtain direct evidence for remarkably long-lived electronic quantum coherence playing an important part in energy transfer processes within this system.

The quantum coherence manifests itself in characteristic, directly observable quantum beating signals among the excitons within the *Chlorobium tepidum* FMO complex at 77K. This wavelike characteristic of the energy transfer within the photosynthetic complex can explain its extreme efficiency, in that it allows the complexes to sample vast areas of phase space to find the most efficient path.

Quantum biology

Neill Lambert, Yueh-Nan Chen, Yuan-Chung Cheng, Che-Ming Li, Guang-Yin Chen & Franco Nori

[Affiliations](#) | [Corresponding authors](#)

Nature Physics **9**, 10–18 (2013) | doi:10.1038/nphys2474

Received 01 July 2012 | Accepted 04 October 2012 | Published online 09 December 2012



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Citation



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Metrics

Abstract

[Abstract](#) • [Introduction](#) • [Quantum coherent energy transport in photosynthesis](#) • [Avian magnetoreception](#) • [Other quantum biological systems](#) • [Conclusions](#) • [References](#) • [Acknowledgements](#) • [Author information](#)

Recent evidence suggests that a variety of organisms may harness some of the unique features of quantum mechanics to gain a biological advantage. These features go beyond trivial quantum effects and may include harnessing quantum coherence on physiologically important timescales. In

this brief review we summarize the latest results for non-trivial quantum effects in photosynthetic light harvesting, avian magnetoreception and several other candidates for functional quantum biology. We present both the evidence for and arguments against there being a functional role for quantum coherence in these systems.

Confirmation: Quantum entanglement in photosynthesis

News: *Quantum Physics* MAY 12, 2010

The discovery that every-day, 'normal temperature', biological systems – plants – use quantum effects in the process of photosynthesis has been advancing for several years. For physicists and biologists this is becoming something of a revelation. Physicists in particular, accustomed to observing quantum effects only at extreme cold (approaching absolute zero), find the idea that Nature has adapted quantum effects to the warm and chaotic environment of living things almost shocking. Yet the evidence is mounting. In 2007 researchers led by Greg Engel at the University of Berkeley California (USA) and Graham Fleming at the Lawrence Berkeley National Laboratory (USA) demonstrated that quantum coherence existed in the so called antenna proteins (sunlight receptors) in green sulfur bacteria. In late 2009, researchers led by Greg Scholes at the University of Toronto (Canada) used laser pulses to set protein molecules spinning, and observed that the energy patterns fluctuated in a way that showed there were connections between them – connections called quantum entanglement. [[SciTechStory: Quantum mechanics in photosynthesis, oh my](#)]

Now a new collaborative team, including Graham Fleming, has added confirmation that the photosynthetic process uses quantum entanglement to utilize nearly 100% of the sun's energy in the conversion of sunlight to carbon-based (sugar) energy.

The new study published in the journal *Nature Physics* in May, provides confirmation of quantum effects in a specific photosynthetic mechanism, and according to Mohan Sarovar, one of the authors:

Quantum Entanglement . . . In Biology

QUANTUM PHYSICS

Quantum Biology: Better Living Through Quantum Mechanics

By Seth Lloyd on Mon, 10 Mar 2014

A quantum computer is a serious piece of hardware. My colleagues and I build quantum computers from superconducting systems, quantum dots, lasers operating on nonlinear crystals, and the like. Although the part of a quantum computer that actually performs the calculation is too small to be seen even under a microscope, the apparatus used to address and control the quantum computer typically takes up an entire laboratory full of equipment. In order to keep their sensitive components shielded from the environment, many quantum computers have to operate at very low temperatures, sometimes a few thousandths of a degree above absolute zero. So in the spring of 2007 when the New York Times reported that green sulphur-breathing bacteria were performing quantum computations during photosynthesis, my colleagues and I laughed. We thought it was the most crackpot idea we had heard in a long time. Closer examination of the paper, published in *Nature*, however, showed that something decidedly non-crackpot was going on.

How could tiny bacteria be performing the kind of sophisticated quantum manipulations that it takes human beings a room full of equipment to perform?

The robin flies with quantum coherence

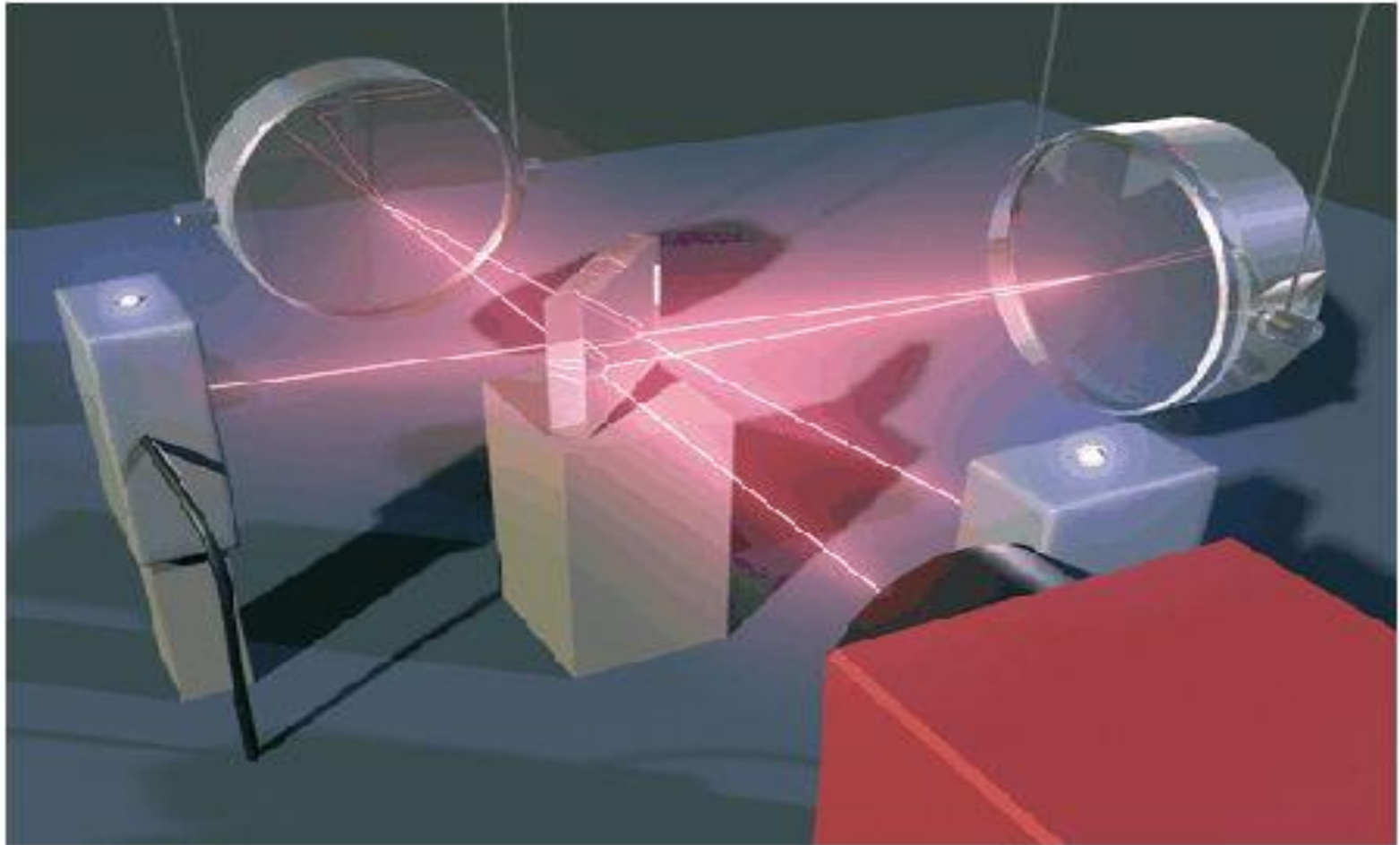
News: *Quantum Physics* JANUARY 24, 2011



The quantum coherent robin red-breast.....Credit: NWFS

In a sense most science and technology news is made up of tidbits, bits and pieces of research. Some of the tidbits are choice morsels, others are insight resistant gristle, and perhaps even more are pure confection. What's generally missing in the news is how (or if) the tidbit fits into a larger piece or the whole enchilada (to use an expression). This fitting into a whole is difficult, even the experts in a field don't always know how all the various pieces of research integrate – if they do at all. So consider this piece of news as a tidbit that *may* be part of a potentially very important whole: Robins use quantum physics for navigation.

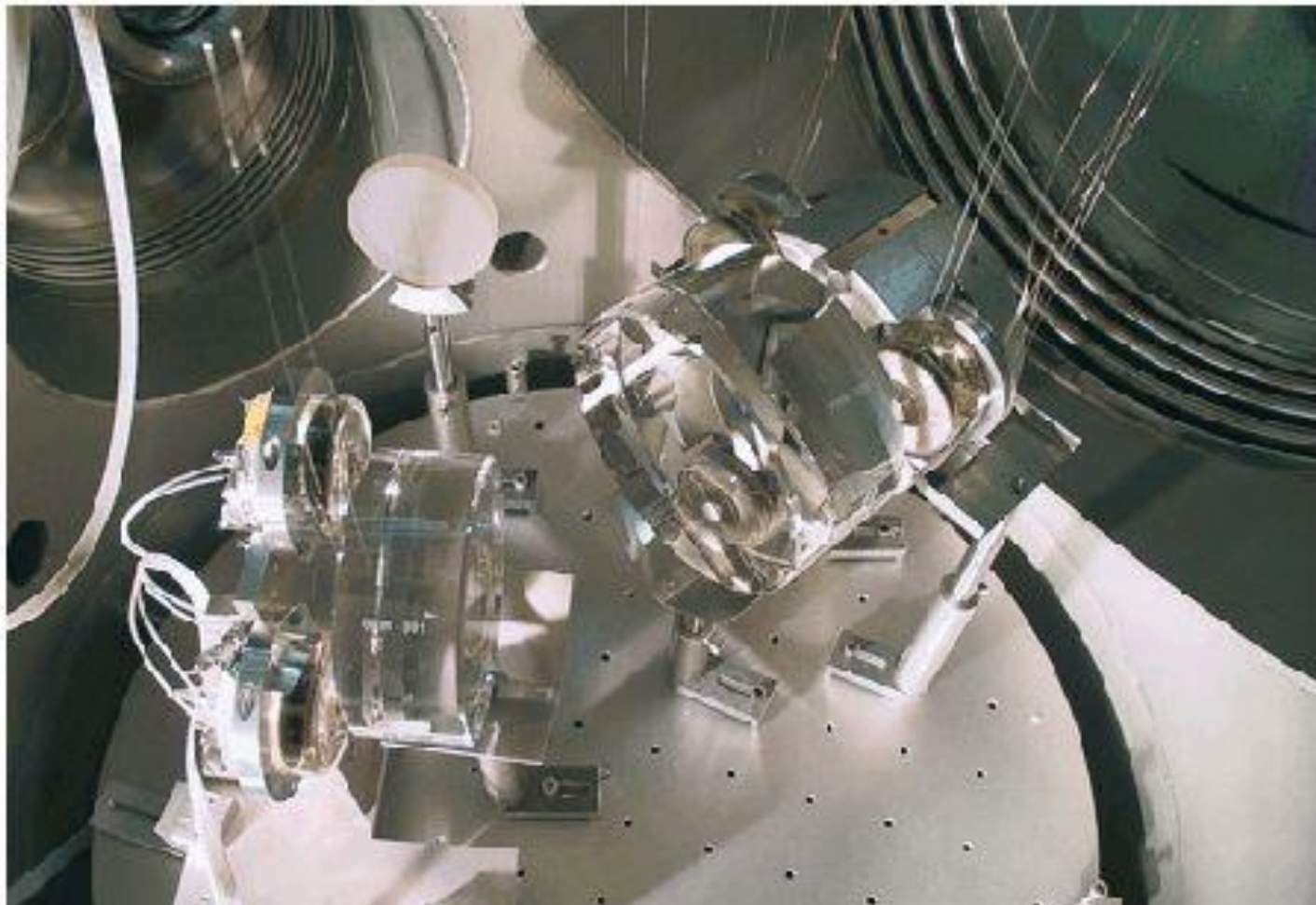
Quantum Entanglement



A laser beam split by a semitransparent piece of glass entangles the mirrors and measures their motion.

Graphic: A. Franzen, Albert Einstein Institute

The properties of one particle can determine those of another even though the two are miles apart and don't exchange any information. What appears to be a spooky phenomenon is what physicists call entanglement, and they have already observed it in small particles. Now Roman Schnabel, a professor at Leibniz University Hannover and at the nearby Max Planck Institute for Gravitational Physics (Albert Einstein Institute), aims to entangle two heavy mirrors.



Evolution into the Next Paradigm -

Humans are a “weed” organism . . .

Organisms are genetically defined by their ecological constraints and corresponding attributes.

Humans are unique in that we can create our own ecological constraints and attributes which are not genetically defined.

Humans can manipulate their own genetic construction and that of the surrounding ecosystems.



Evolution into the Next Paradigm -

Organisms are genetically defined by their ecological constraints and corresponding attributes.

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- **Mutation on demand . . . As a commodity**
- **As a function of intent, or a consequence of circumstance**

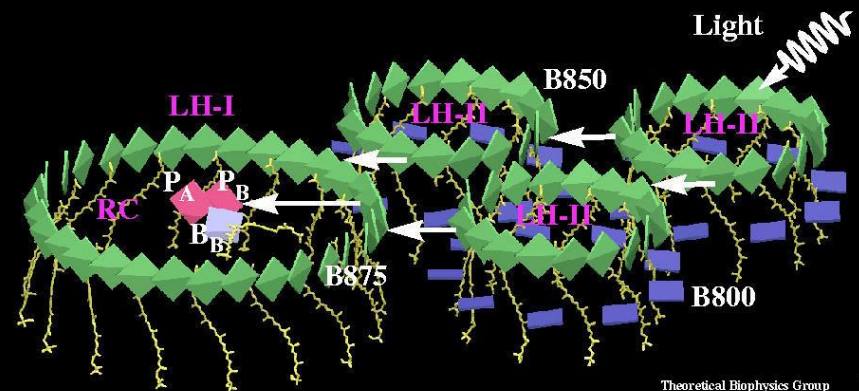
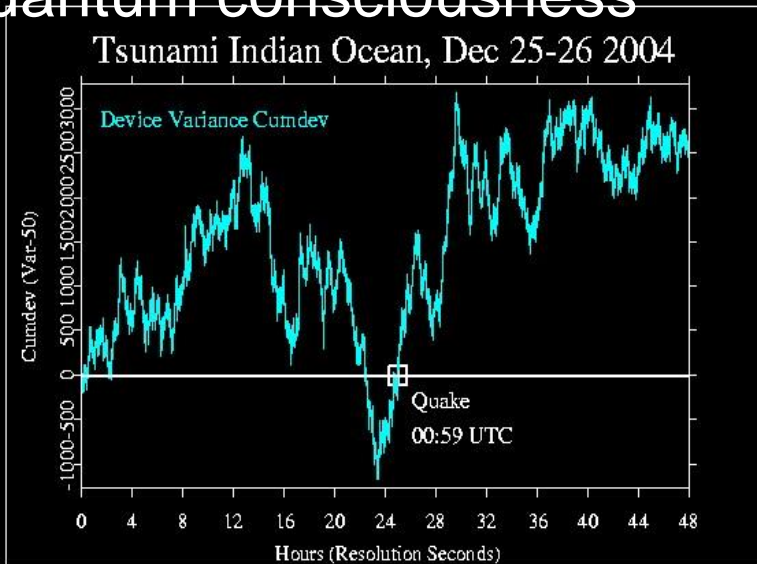
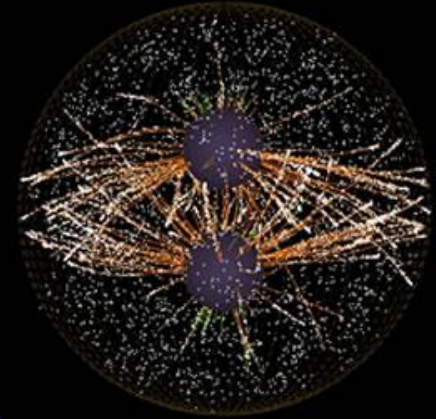
Evolution into the Next Paradigm -

Things and concepts presented . . .

A brief primer on Quantum Physics

A slightly longer primer on quantum biology

Current hard data and experiments in quantum consciousness



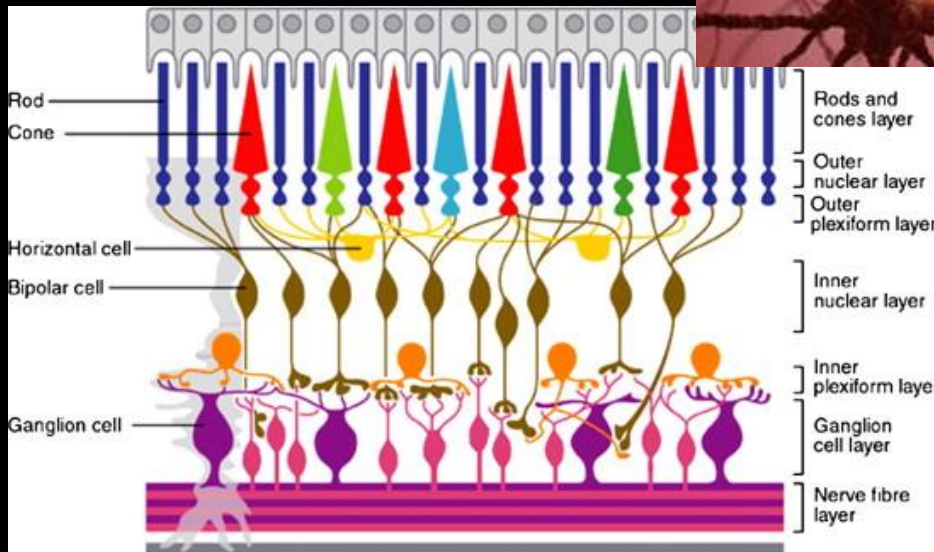
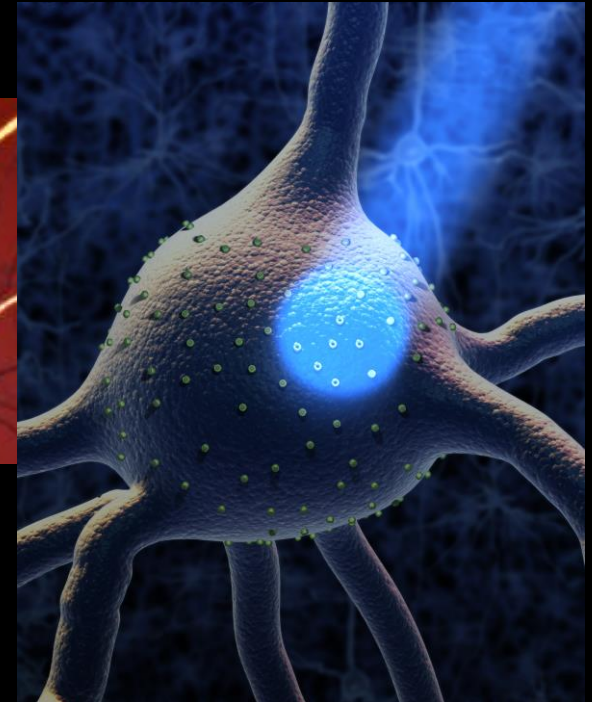
Theoretical Biophysics Group
Beckman Institute
University of Illinois Urbana-Champaign

Evolution into the Next Paradigm -

Neurological sovereignty

Memory mapping

Optogenetics



Information sovereignty

N-dimensional space-time

Photonic Quantum Encryption

Evolution into the Next Paradigm -

Humans are a “weed” species . . .

Other organisms are genetically defined by their ecological constraints and attributes

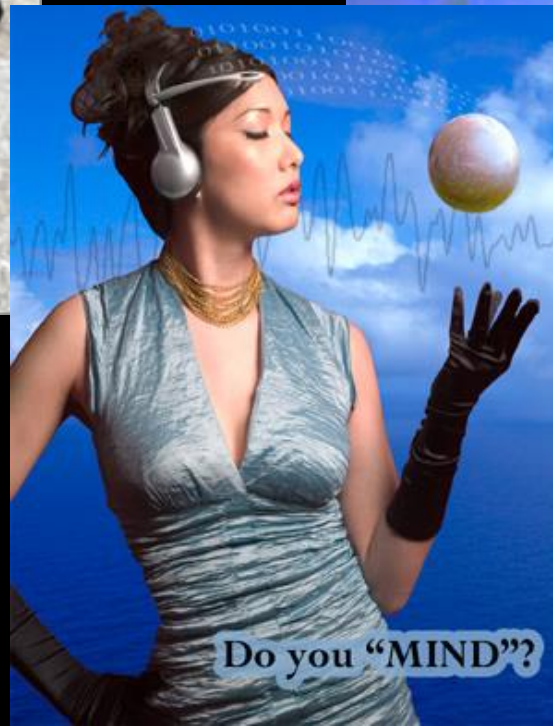
Humans are unique in that we can create our own ecological constraints and attributes which are not genetically defined.

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- **Mutation on demand . . . As a commodity**

Evolution into the Next Paradigm -

HANDS-ON REVIEW NeuroSky MindWave Mobile Brain-Computer Interface Headset



3/4/2019

Evolution into the Next Paradigm -

The new “normal” –

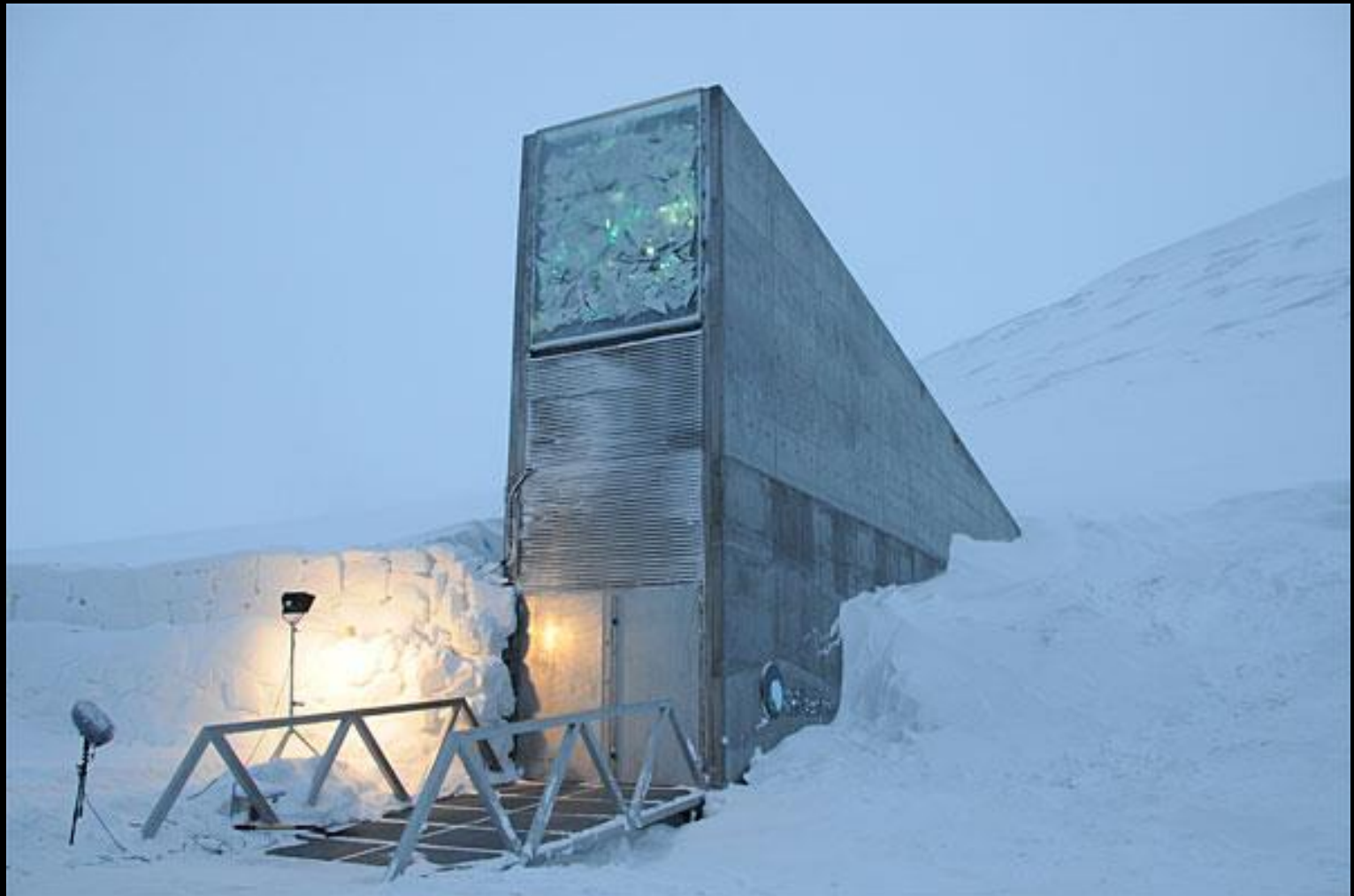
Ubiquitous immersion into a realtime, all the time operational ecology in which the “real” and “virtual” coalesce into an ever evolving continuum, from which the very definition of individual life itself evolves into an entirely unique form of existence



10,000 Year Clock
Mt. Washington, NV

Svalbard Global Seed Vault

Longyearbyen, Norway



Instructions for the Post Apocalypse Georgia Guidestones



Evidence of Physical Manifestations of Communication within the Empathic Web

The Message:

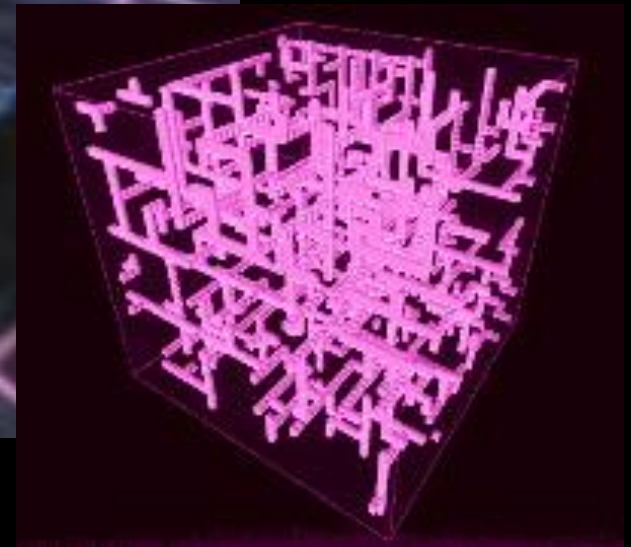
- ❑ Respect for all Living Things
- ❑ Respect for the Planet as a Living Thing
- ❑ Respect for the Cosmos as a “Living System”



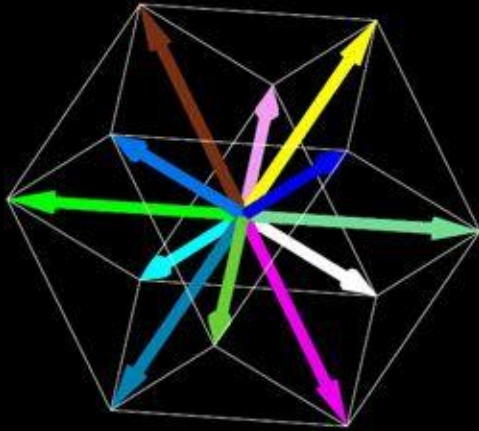
Focussed intentionality amplified and tuned as an instrument of influence for “spawning” the history of our future – system architecture overview

Collective Consciousness Enhancement

Evolution of the Hybrid Quantum Meta-Organism

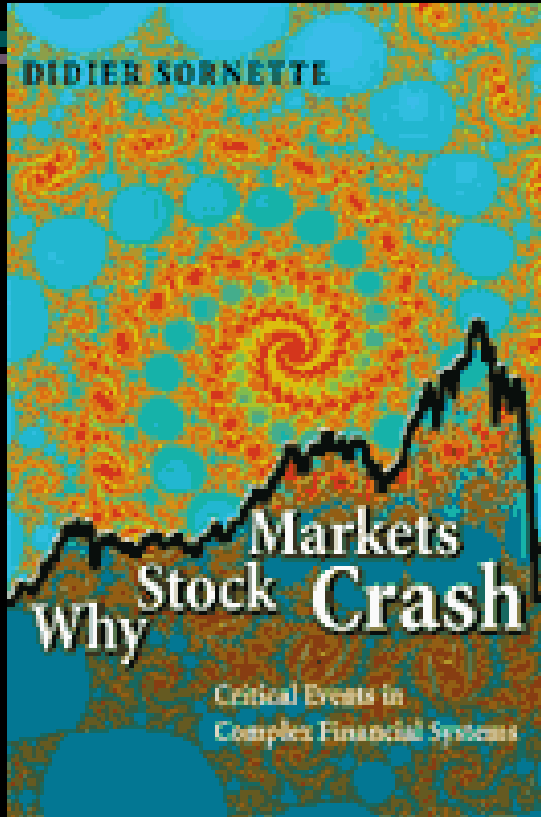


Instructions for the Post Apocalypse Georgia Guidestones



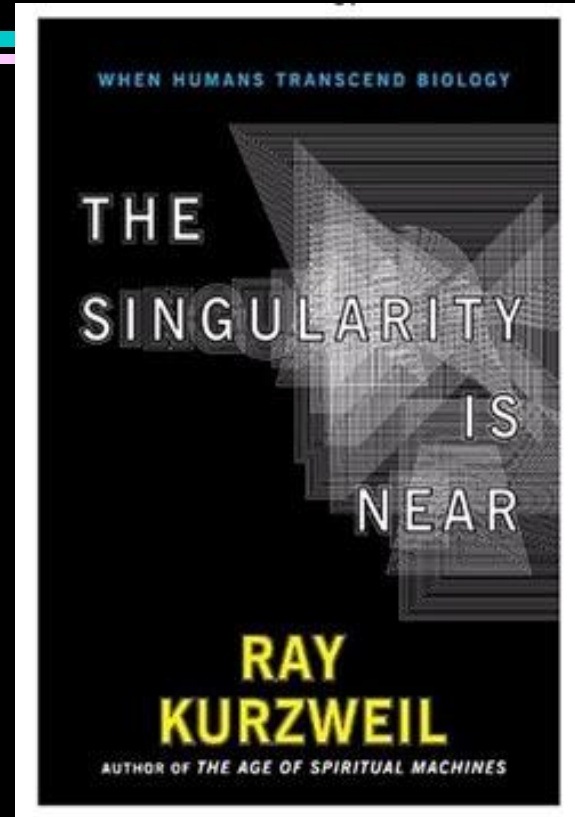
Chaos Theory, Evolutionary Socio-Economic Systems

Models, the approaching Singularity



Why Stock Markets Crash, 2003

Singularity 2050 ± 10 years



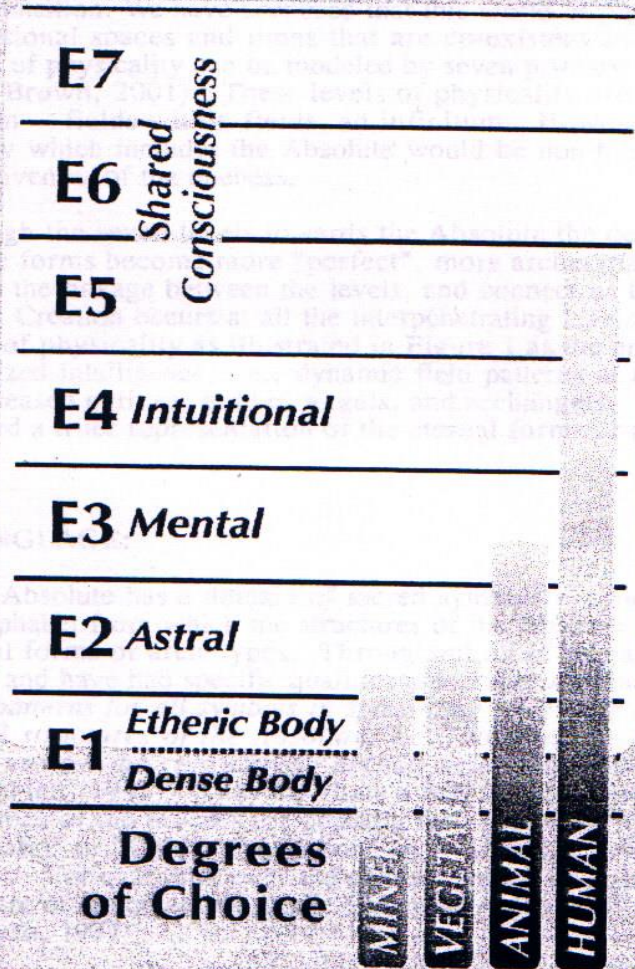
The Singularity is Near, 2005

Singularity 2045 ± 20 years

The Absolute

SPIRIT. . . UNMANIFEST FORMS. . . TAO. . . FIELD OF IDEALS. . .

EMERGENT FORMS



Physicality. . . Space/Time

Excerpted from:
“Domain of Unbounded
Potential – The Science
of the Absolute”

William Gough
Dean Brown

FMBR

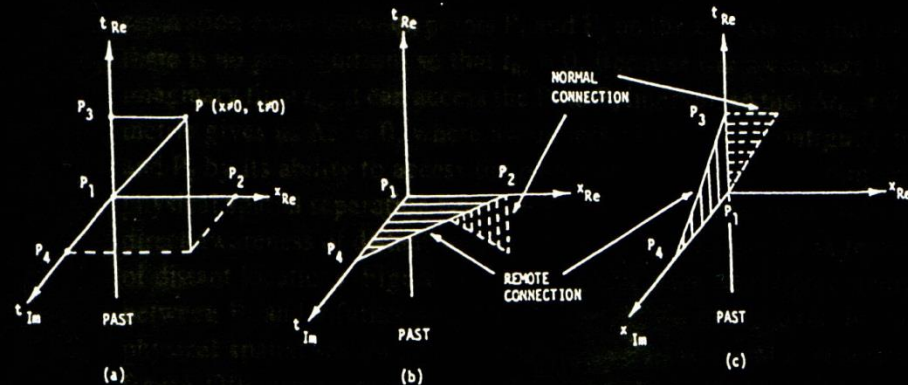
Foundation for Mind
Being Research

4D Spatio-Temporal Domain of Biophysical Confinement in Localized Phenomenological Causality Linkage vs 8D / ND Quantum Domain non-Locality Space-Time Metric

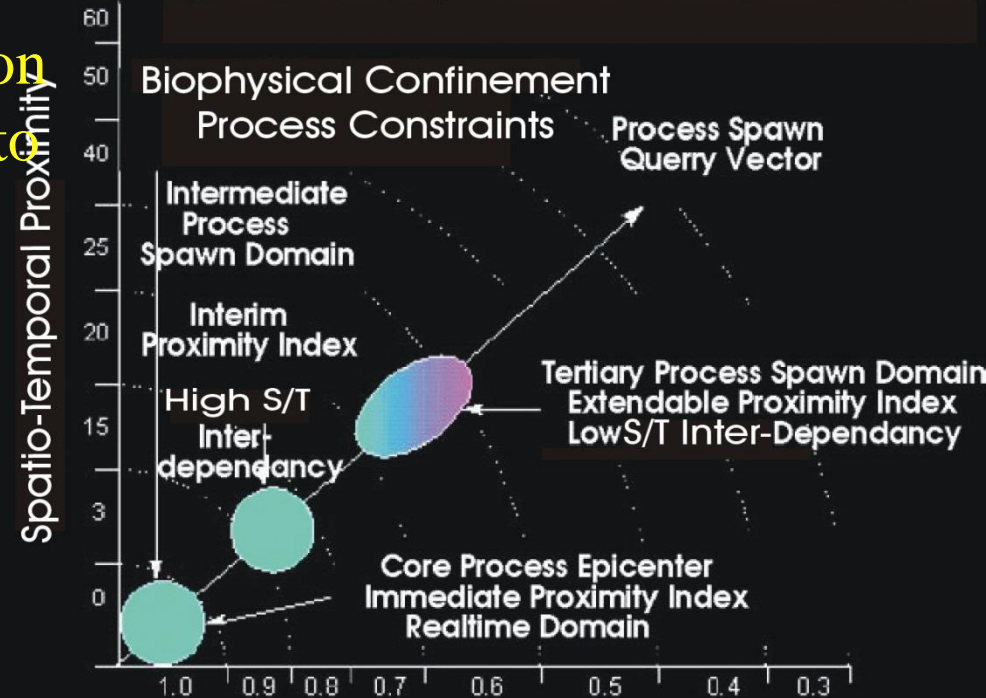
The Speed of Thought: Investigation of a Complex Space-Time Metric to Describe Psychic Phenomena
Elizabeth Rauscher, Russell Targ

8D "complex Minkowski space"

The Speed of Thought



4D Spatio-Temporal Process Manifold



Phenomenological / Causality Linkage Proximity Domains
 \leq 8D Precognitive perception domain model

- A – spatio-temporal separation
- B – spatially separated, temporally synchronous
- C – temporally separated, spatially contiguous

Kardashev Scale

Evolutionary Energy Access Civilization Hierarchy



Penrose and Quanglement Entanglement and the New Physics



In the past, teleportation has only been possible with particles of light Image: Rainer Blatt

By taking advantage of quantum phenomena such as entanglement, teleportation and superposition, a quantum computer could, in principle, outperform a classical computer in certain computational tasks.

Entanglement allows particles to have a much closer relationship than is possible in classical physics. For example, two photons can be entangled such that if one is horizontally polarized, the other is always vertically polarized, and vice versa, no matter how far apart they are. In quantum teleportation, complete information about the quantum state of a particle is instantaneously transferred by the sender, who is usually called Alice, to a receiver called Bob. Quantum superposition, meanwhile, allows a particle to be in two or more quantum states at the same time

THEORETICAL *and* COMPUTATIONAL BIOPHYSICS GROUP

NIH RESOURCE FOR MACROMOLECULAR MODELING AND BIOINFORMATICS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

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Quantum Biology of the PSU

It is through photosynthesis that earth's biosphere derives its energy from sunlight. Photosynthetic organisms, i.e., plants, algae and photosynthetic bacteria, have developed efficient systems to harvest the light of the sun and to use the light energy to drive their metabolic reactions, such as the reduction of carbon dioxide to sugar. The ubiquitous green color of plants is testimony to the key molecular participant in the light harvesting of plants, chlorophylls. More hidden in this respect, but no less widespread, is a second participating molecule, carotenoid. In green leaves the color of the carotenoids is masked by the much more abundant chlorophylls while in red ripe tomatoes or petals of yellow flowers, the carotenoids predominate. Chlorophyll molecules exist in slightly different chemical structures in various photosynthetic organisms, as chlorophyll a or b in plants or algae, and as bacteriochlorophyll a (BChl-a) or b in photosynthetic bacteria. Molecules such as chlorophyll and carotenoid that absorb light and impart color to living matter and other materials are called pigments.

In general, biological pigments are non-covalently bound to proteins, forming the so-called pigment-protein complexes. The pigment-protein complexes are organized as the photosynthetic unit (PSU). The bacterial PSU consists of two types of pigment-protein complexes: the photosynthetic reaction centers (RCs) and the light-harvesting complexes. The main function of the light-harvesting complexes is to gather light energy and to transfer this energy to the reaction centers for the photo-induced redox processes. In most purple bacteria, the photosynthetic membranes contain two types of light-harvesting complexes: light harvesting complex I (LH-I) and light harvesting complex II (LH-II). While LH-I is tightly bound to the photosynthetic reaction centers, LH-II is not directly associated with the reaction centers, but transfers energy to the reaction centers via LH-I.

Purple bacteria are great masters of harvesting light. Nearly all the energy gained by the absorption of a photon is transferred on to the reaction center. To illustrate how purple bacteria achieve such high efficiency, we trace the way of a photon (and its excitation energy, respectively) through the light-harvesting system. On this way we will point out the remarkable geometrical features that serve the process of harvesting light. It is the goal of our research to understand how these geometrical features translate into physical properties that ideally support the biological function. It will be shown that purple bacteria exploit elegant quantum physics, the working of which were only fully understood recently after the discovery of the structures of light-harvesting complexes and investigations into their electronic excitations.

Primary Absorption of a Photon

Light is absorbed either by bacteriochlorophylls or carotenoids in different spectral regions. Two kinds of bacteriochlorophylls absorb at slightly different energies and at different angles. The ring structure enhances absorption and generates an energy trap.

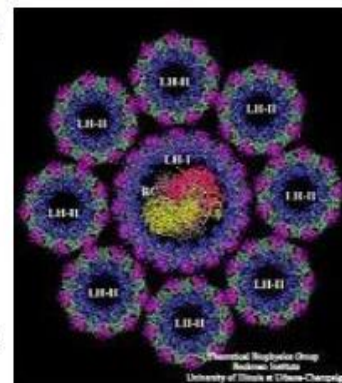


image size: 208k; made with
VMD



Figure produced with VMD

Quantum crypto / teleportation – the next increment of secure system evolution

- All networks are vulnerable



From Computer Desktop Encyclopedia
© 2005 MagiQ Technologies

Alice's Key



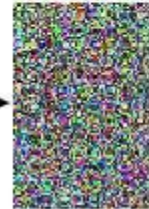
Bob's Key



Original: (a)



Encrypted: (b)

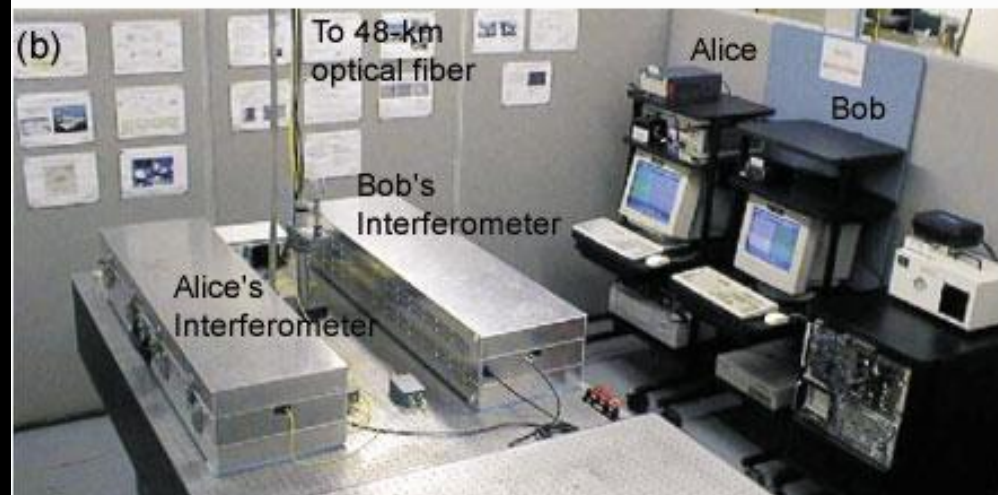
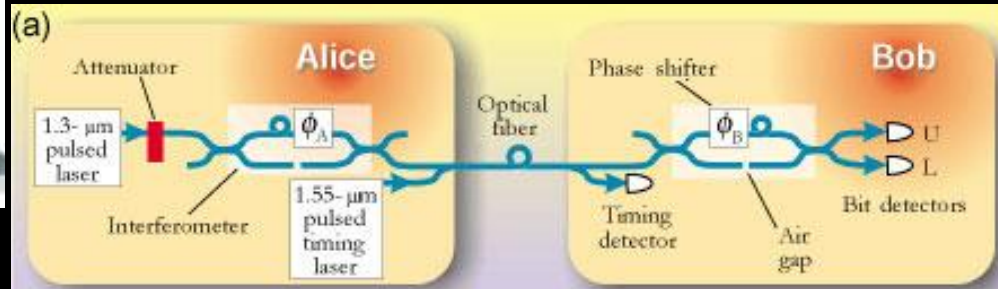


Decrypted: (c)



Bitwise
XOR

Bitwise
XOR



Australian scientists claim to have 'teleported' data

June 22, 2002 | By Peter O'Connor, Associated Press

2002-06-22 04:00:00 PST Canberra, Australia

-- Australian scientists said Monday they had successfully "teleported" a laser beam encoded with data, breaking it up and reconstructing an exact replica a yard away.

Their work replicates an experiment at the California Institute of Technology in 1998, but the Australian team believes their technique is more reliable and consistent.

Although the research brings to mind the way "Star Trek" characters were beamed around on TV and in film, scientists at the Australian National University said their technique's main use will be as a way to encrypt information and for a new generation of super-fast computers.

At this stage, the process perfected by Australian physicist Ping Koy Lam and his 12-member team can only teleport light by destroying the light beam and creating an exact copy at the receiving end from light particles known as photons.

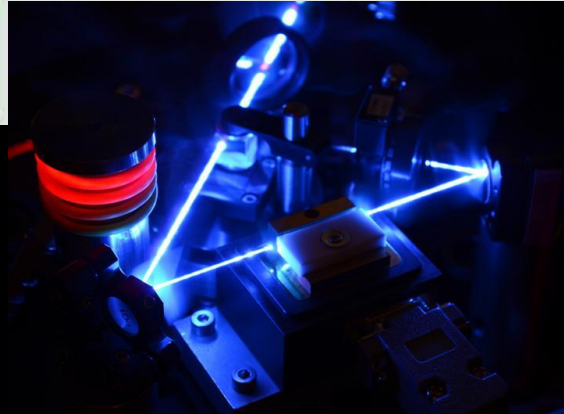
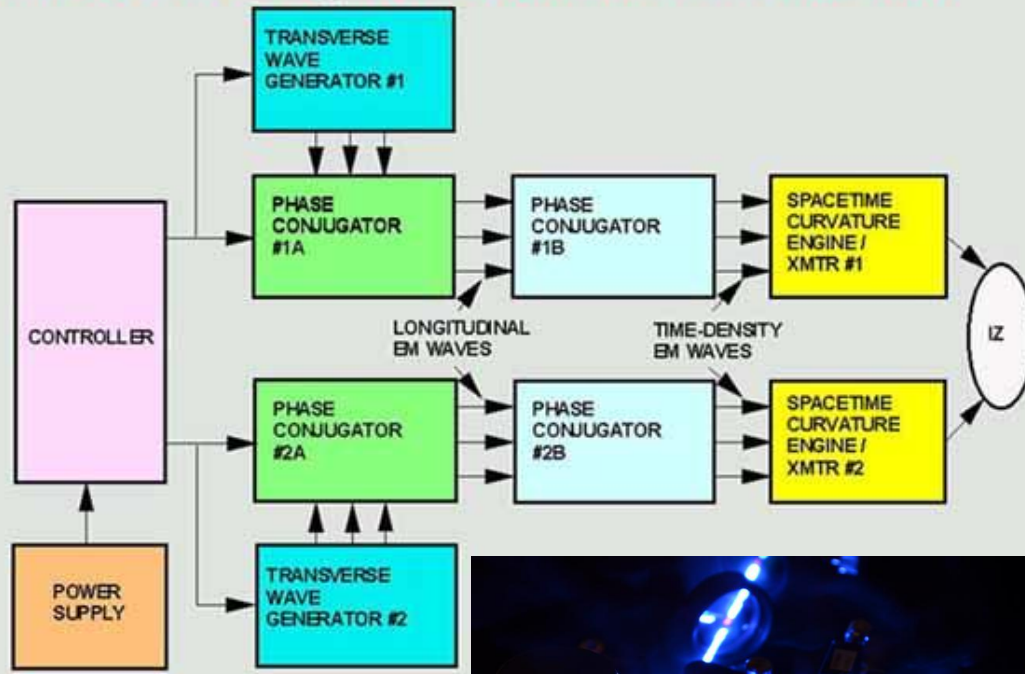


Physicist Ping Koy Lam, right, and doctoral student Warwick Bowen used a process known as quantum entanglement to achieve the teleportation of a laser light beam in Canberra, Australia. News Ltd photo via Associated Press

Quantum Teleportation . . .

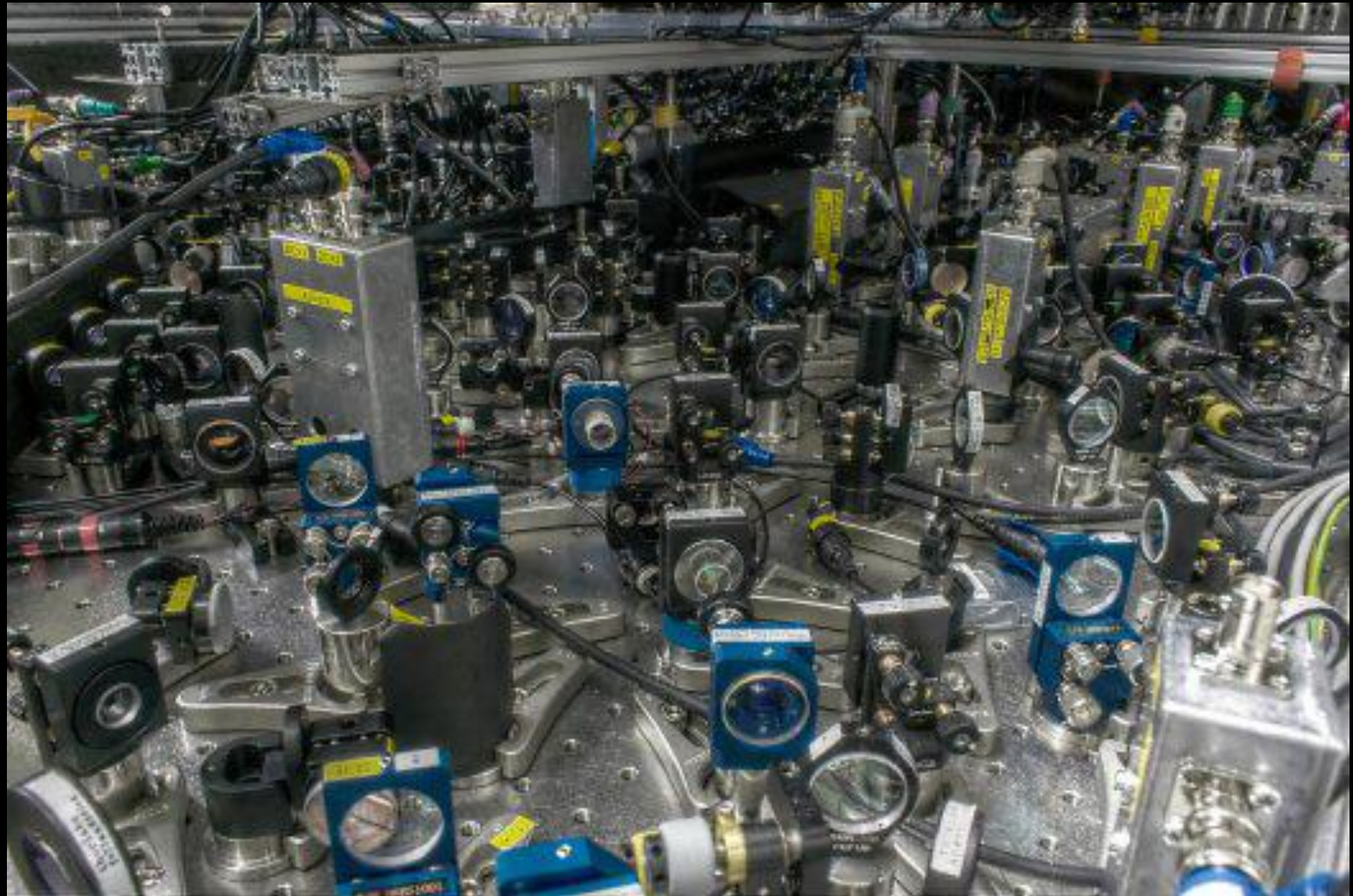
Quantum Encryption

Time-Polarized EM Wave interferometer Creating Space-Time Curvature Engines in a Distant Interference Zone



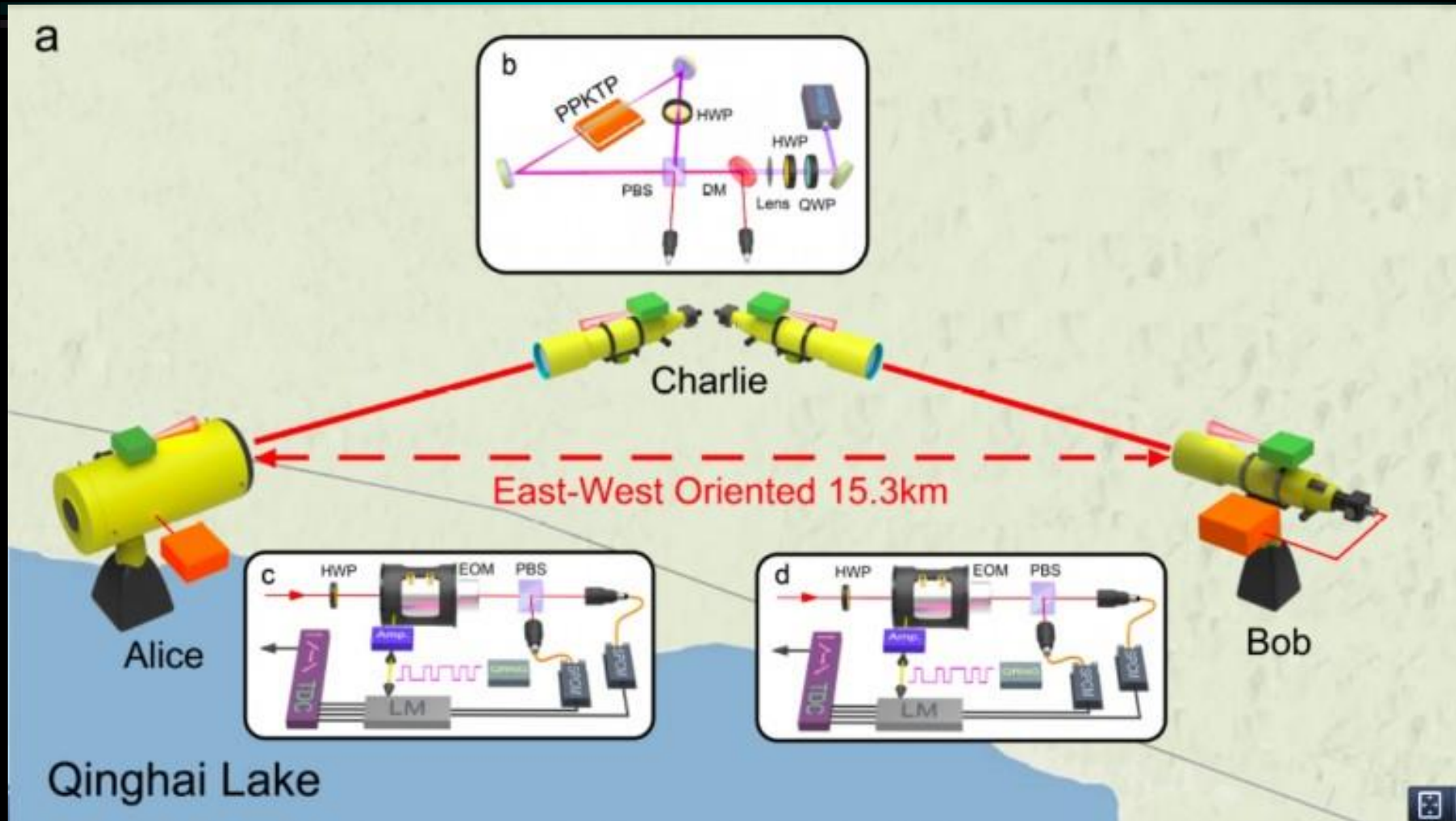
Quantum Teleportation . . .

Quantum Encryption



Quantum Teleportation . . .

Quantum Encryption



Spooky Experiment on ISS Could Pioneer New Quantum Communications Network

by JOHN WILLIAMS on APRIL 12, 2013



ISS022E080014

The cameras mounted in the ISS's cupola could serve as the platform for the first-ever quantum optics experiment in space. Image credit: NASA

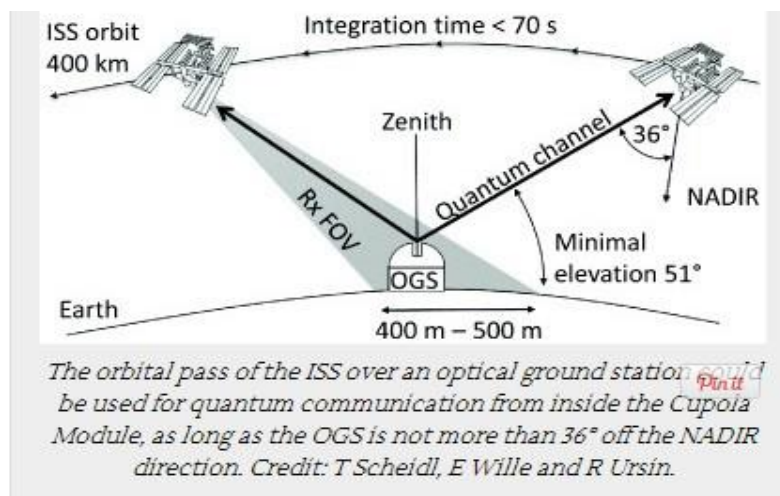
[Pin it](#)

Quantum encryption keys obtained from a moving plane

A technical demonstration shows that an exchange with satellites is possible.

by [John Timmer](#) - Apr 2 2013, 11:30am PDT

- [Physical Sciences](#)

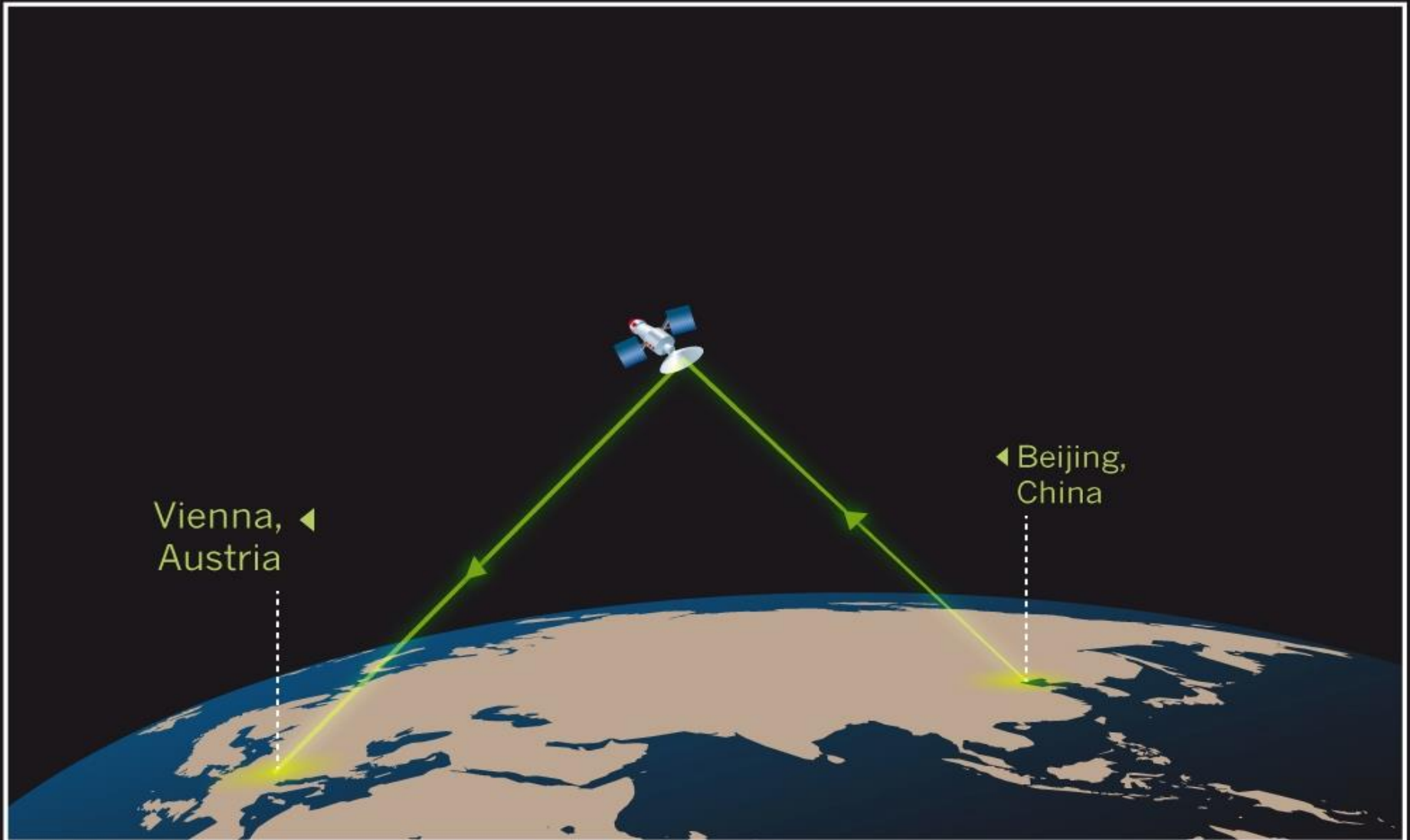


The ISS experiment proposes using a “Bell experiment” to test the theoretical contradiction between predictions in quantum and classical physics. For the Bell experiment, a pair of entangled photons would be generated on the ground; one would be sent from the ground station to the modified camera aboard the ISS, while the other would be measured locally on the ground for later comparison. So far, researchers sent a secret key to receivers just a few hundred kilometers apart.

“According to quantum physics, entanglement is independent of distance. Our proposed Bell-type experiment will show that particles are entangled, over large distances — around 500 km — for the very first time in an experiment,” says Ursin. “Our experiments will also enable us to test potential effects gravity may have on quantum entanglement.”

Quantum Teleportation . . .

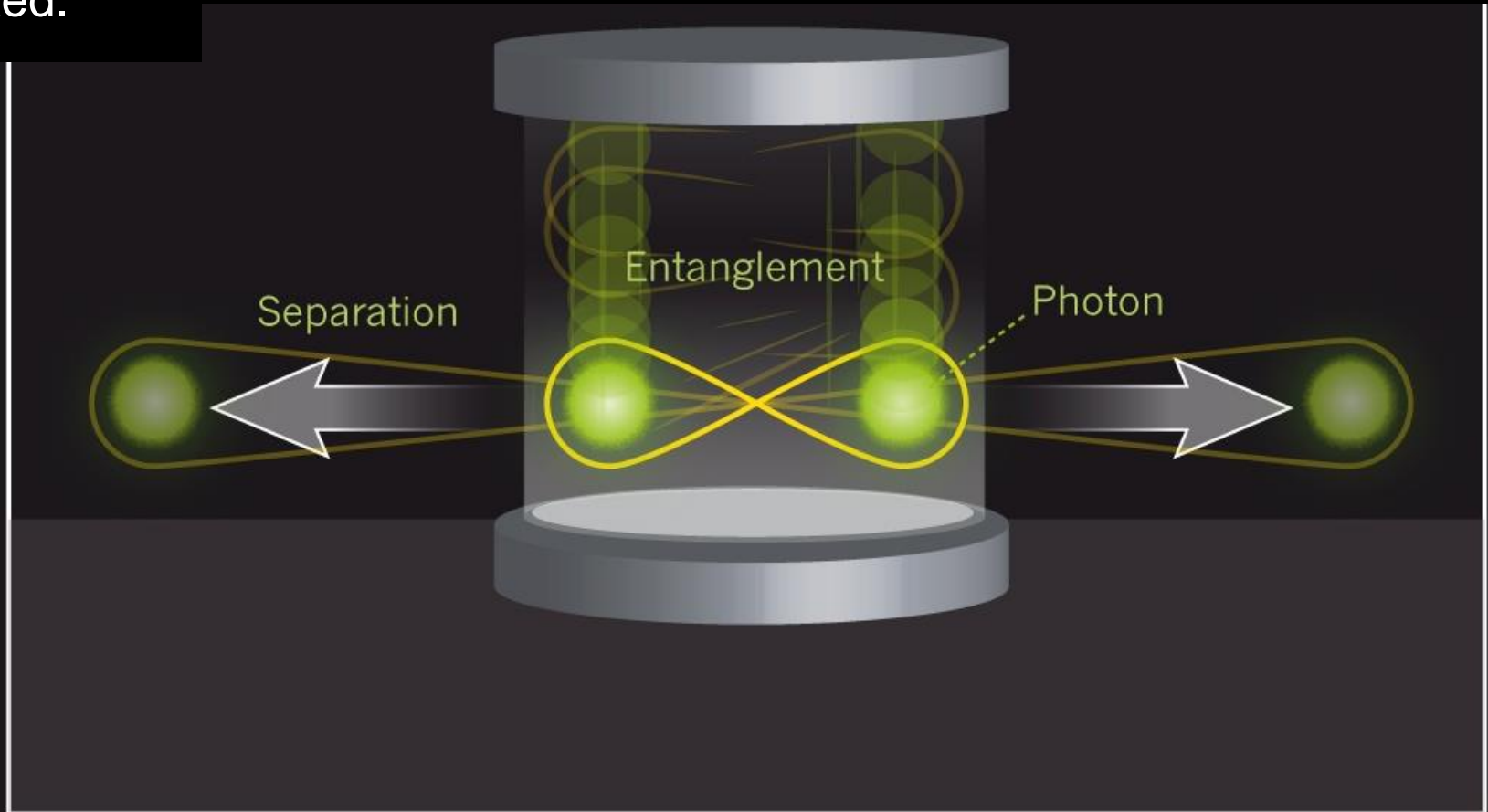
Quantum Encryption



Quantum Teleportation . . .

Quantum Encryption

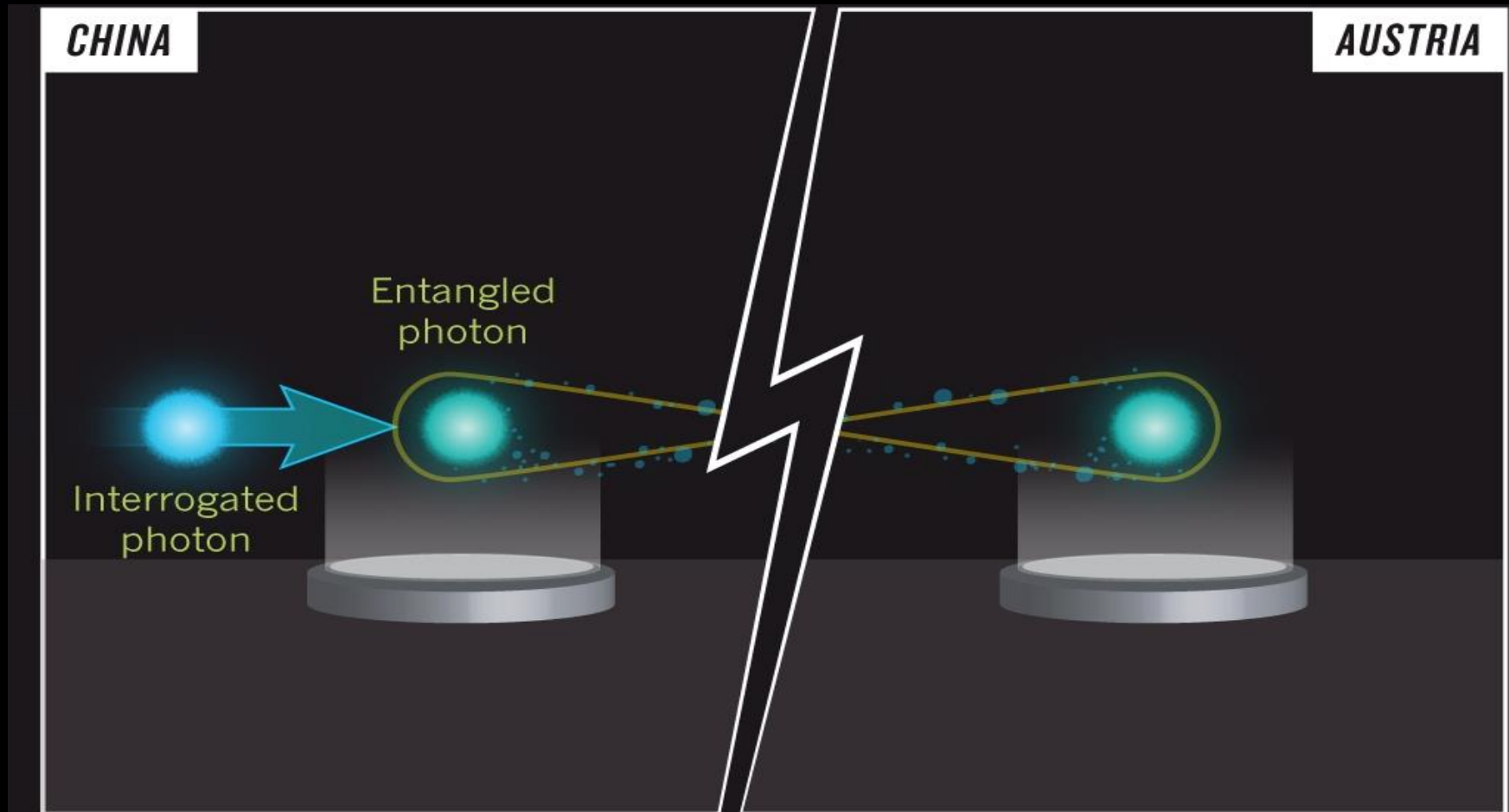
Two photons are 'entangled' in the lab. Although their individual polarizations are not yet set, the entanglement ensures that any measurement will find both polarizations to be identical — no matter how widely the particles are separated.



Quantum Teleportation . . .

Quantum Encryption

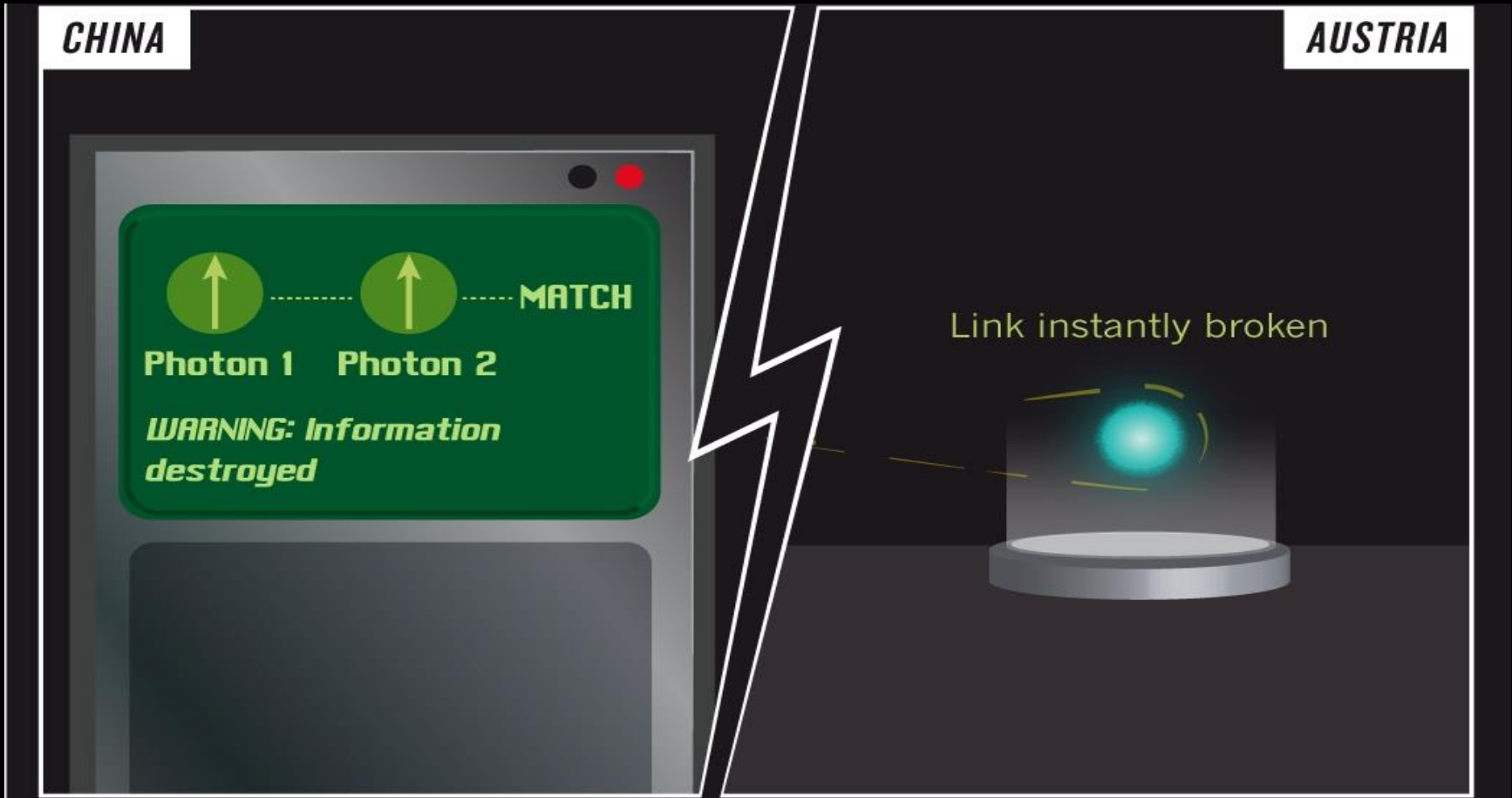
The stay-at-home photon is used to pick up information from another photon. The traveling photon is instantly affected by the comparison in China, and acquires information about the interrogated photon.



Quantum Teleportation . . .

Quantum Encryption

The photons in China are checked to see whether they match. This process destroys the information held by the interrogated photon. The test in China also destroys the link between the entangled photons.



Quantum Teleportation . . .

Quantum Encryption

The result of the test in China is communicated through conventional means. It tells the experimenters in Austria how to put their photon into a state identical to that of the interrogated photon — which has thus been 'teleported'.

