Quantum Consciousness in the Penrose-Hameroff Model

Cosmological relevance of microtubules to the size of the electron as conformal wormhole quantization in quantum geometry

View: https://www.youtube.com/watch?v=Xx0SsffdMBw

View: https://www.youtube.com/watch?v=jXBfXNW6Bxo

The number of micro tubules in the Hameroff-Penrose model for physicalized consciousness can be related to the actual scale of the classical electron radius and the cosmological spacetime matrix.

Using this conformal mapping from the Quantum Big Bang 'singularity' from the electric charge in brane bulk space as a magnetic charge onto the classical spacetime of Minkowski and from the Planck parameters onto the atomic-nuclear diameters in $2R_ec^2 = e*$ from the Planck length conformally maps the Planck scale onto the classical electron scale.

A conformal scale of 2.5 fm, which is close to the classical electron radius of about 2.8 fermi and as defined in the alpha electromagnetic fine structure and the related mass-charge definition for the eigen energy of the electron in $m_ec^2 = ke^2/R_e$.

Applying $E_G=\hbar/t$ to microtubule quantum computing terminated by OR

Gravitational self-energy E_G of a superpositioned tubulin is given by $E_G= Gm^2/a_c$ where a_c is the superposition separation distance, a carbon nucleus sphere radius equal to 2.5 fermi distances (2.5 femtometers, 2.5×10^{-15} meter)

For $t = 50$ msec (gamma synchrony), E_G of 10^{10} superpositioned tubulins is required

Hameroff and Penrose, 1996

Also in a model of quantum relativity (QR), there is a quantization of exactly 10^{10} wormhole 'singularity-bounce' radii defining the radian-trigonometric Pi ratio as $R_{wormhole}/R_{electron} = 360/2\pi.10^{10}$ or $10^{10} = \{360/2\pi\}\{R_e/R_{wormhole}\}$ as a characteristic number of microtubules in a conformal mapping from the classical electron space onto the 'consciousness' micro-space of the neuron-cell intermediate between the Hubble scale of 10^{26} m and the Planck scale of 10^{-35} m as geometric mean of 10^{-4} to 10^{-5} meters.
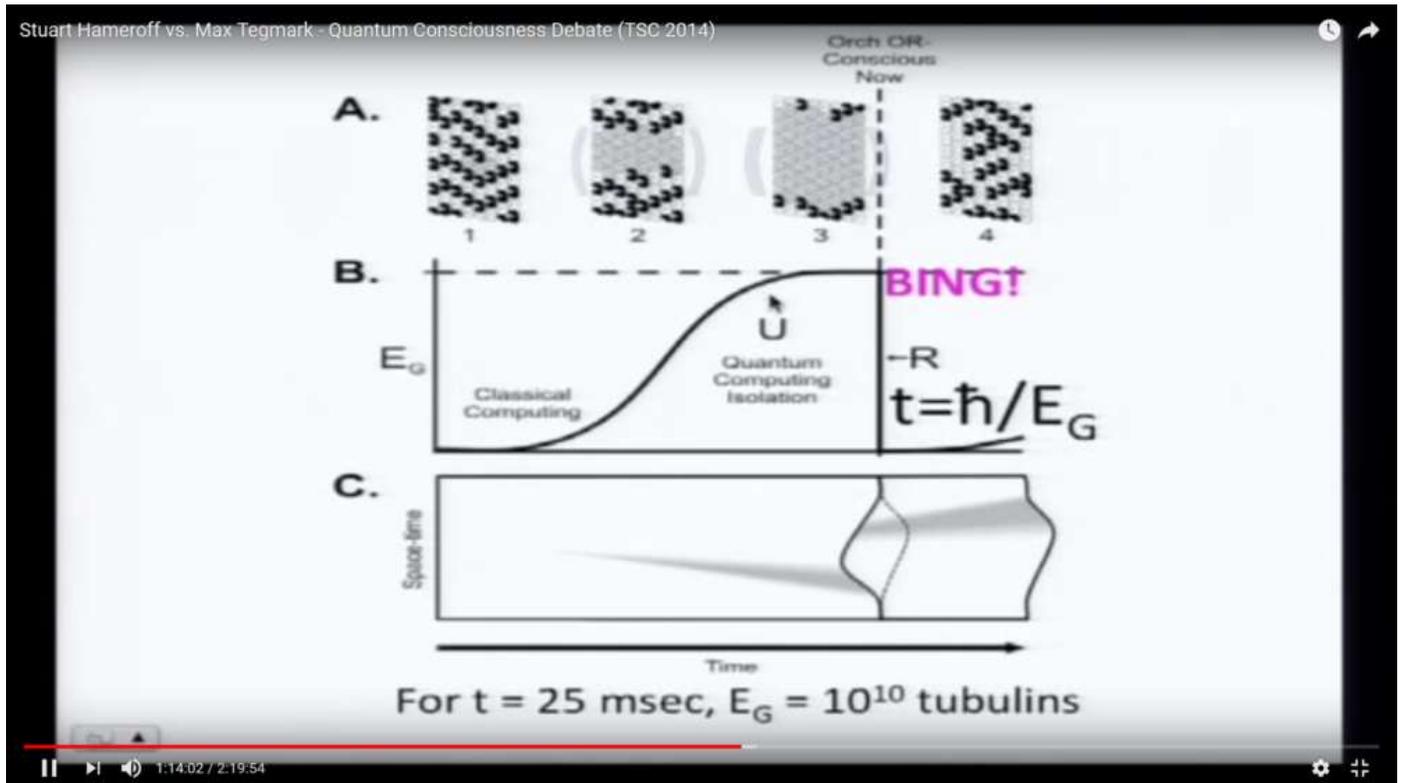
The geometry of the architecture of the microtubules and the nature of their construction utilizing the pentagonal quasi-crystalline pattern in its application, so maximizes the compression of information in the Fibonacci geometrical pattern-sequencing. This then results in the conformal mapping of this geometry as a quantum geometry and defines physical consciousness as a conformal mapping of the quantum of spacetime in the form of Weylian 'Quantum Big Bang' wormholes of the cosmogenesis.

The pre-Big Bang 'bounce' of many models in cosmology can be found in a direct link to the Planck-Stoney scale of the 'Grand-Unification-Theories'. In particular it can be shown, that the Square root of Alpha, the electromagnetic fine structure constant α, multiplied by the Planck-length results in a Stoney-transformation factor $L_P\sqrt{\alpha} = [e/c^2]|_{mod}$ in a unitary coupling between the quantum gravitational and electromagnetic fine structures $\{G_ok=1$ and representing a conformal mapping of the Planck length onto the scale of the 'classical electron' in superposing the lower dimensional inertia coupled electric charge quantum 'e' onto a higher dimensional quantum gravitational-D-brane magnetopole coupled magnetic charge quantum 'e*' $= 2R_e.c^2 = 1/hf_{ps} = 1/E_{Weyl\ wormhole}$ by the application of the mirror/T duality of the super membrane $E_{ps}E_{ss}$ of heterotic string class HE(8x8)$\}$.

This boundary condition on a universal Black Hole evolution can be based on the definition of physical consciousness and the magneto charge as the Eps-gauge photon, acting as prime agency in a Unified-Field-Of-Quantum Relativity or UFOQR.

As magneto charge $e^* = 1/hf_{ps}$ in the units of the Star Coulomb could be written as $[C^*] = [m^3/s^2]^*$; the Gravitational parameter GM in the same units $[Nm^2/kg^2].[kg] = [m^3/s^2]$ could be used for the purpose to relate the volume occupied by a Black Hole to the ubiquitous nature of physical consciousness as permeating spacetime itself.

This is mathematically expressed in the Fibonacci sequence and the Euler Identity.
The FRB or Functional-Riemann-Bound in Quantum Relativity is basic to the pentagonal string/brane symmetries and is defined in the renormalization of a wavefunction $B(n) = (2e/hA).exp(-alpha.T(n))$, exactly about the roots X and Y, which are specified in the unifying condition of the Euler Identity:

$$XY = X+Y = i^2 = -1 = \cos(\pi) + i\sin(\pi) = e^{i\pi}$$

$X = \frac{1}{2}(\sqrt{5}-1) = 0.618033.....$ and $Y = -(X+1) = -\frac{1}{2}(\sqrt{5}+1) = -1.618033...$
$-X(X-1) = 0.236067...$ in analogue to $X(X+1) = 1 = T(n)$ and $XY = X+Y = -1 = i^2$
as the complex origin.

The Cosmic Wavefunction in the UFOQR is the following Differential Equation:

$dB/dT + \alpha B(n) = 0$;

α being Alpha, the Electromagnetic Fine structure as the probability of light-matter interaction (~1/137).

This has a solution:

$B(n) = B_0.exp[-\alpha.T(n)]$; $B_0 = 2e/hA$ from QR boundary conditions defining:

$T(n) = n(n+1)$ as the Feynman Path-Summation of particular histories under the pentagonal supersymmetry given in the (Euler) identity:

$XY = X+Y = -1 = i^2 = exp[i\pi]$ and for the limiting condition: $\lim [n\rightarrow X]\{T(n)\} = 1$

This allows the Normalization of the $[\Psi]^2$ wave function to sum to unity in
$B(n) = (2e/hA).exp[-\alpha.n(n\ 1)]$ with Functional Riemann Bound FRB=-1/2,
centered on the interval $[Y,...-1,...-X,...-1/2,...(X-1),...0,...X]$.

Interval $[Y,-1]$ sets F-Space; interval $[-1,0]$ sets M-Space with uncertainty interval $[-X,(X-1)]$ and interval $[0,n)$ sets the C-Space, encompassing Omni-Space.

n<0 is imaginary as real reflection of real n>0 of the C-Space, metrically defined at the

coordinate $n=0$ mapping $n=n_{ps}$, which is the Instanton $t_{ps}=f_{ss}=1/f_{ps}$.

Cycle time n is defined in GR as dimensionless Tau(τ)-Time in curvature radius $R_C=c.dt/d\tau$ for the pathlength of $x=ct$ and becomes $dn/dt = H_o$, $n = H_o t$ in QR, with H_o the nodal Hubble Constant defined in $c=H_o R_{max}=\lambda_{ps}.f_{ps}$.

The Feynman Path so sums both negative and positive integers as:
$-n.......-3...-2...-1...0...1...2...3......n = T(n)$ in absolute value to double the infinities as the entropy reversal of light path $x=ct=(-c)(-t)$ in the Möbius Property of the 4 worlds as outlined in the 13 dimensions of the time connectors.

Cantor Cardinality Aleph-Null is thus Unitized in Aleph-All, counting infinities as if they were integers of the Feynman Path.
This allows the Feynman interpretation of Quantum Mechanics as alternative to the formulations of Schrödinger (fermionic 1/2 spin) and Klein-Gordon (bosonic integral spin) as time independent and time dependent (free particle form inconsistent with SR in Schrödinger in 1st order t & 2nd order x), formulations respectively.

The units of $B(n)$ are $1/J$, that is Inverse Energy, with A^2 an algorithmic constant defining Current-Squared and $2e/h$ the Josephson Constant in Amperes/Joules.

$B(n)$ as the universal cosmic wavefunction describes the universe as a potentially infinite collection of 'frozen' wormhole eigenstates at $n=0$.
The time Instanton 'unfreezes' one such eigenstate and activates the protoverse as described in an arbitrary local time calibration, say November 4th, 1996; Canberra, Australia, local time, as an example to 'measure universal time, say in cosmic seconds s*, backwards in time.

This then allows the 'Mappings' of the C-Space 'real time $n>0$' from the F-Space of the 'imaginary time $n<-1$' under utility of the M-Space interval as 'mirror-space'.

with $T^2(n) = 1 = X(X+1) = -i^2 = -XY$ in the Feynman-Path-Integral as alternative quantum mechanical formulation for the equations of Schrödinger, Dirac and Klein-Gordon by: $T(n)=n(n+1)=|-n|+...+|-3|+|-2|+|-1|+0+1+2+3+...+n$
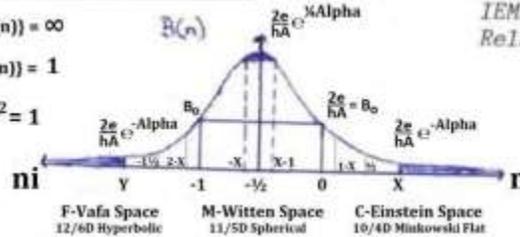
$B(n) = 2e/hA.exp[-Alpha.T(n)]$

Aleph-Null: $\lim_{n \to \infty}\{T(n)\} = \infty$

Aleph-All: $\lim_{n \to X}\{T(n)\} = 1$

$|X+Y|=|XY|=-i^2=1$

$B(n)$

$\frac{2e}{hA}e^{\frac{1}{2}Alpha}$

B_o

$\frac{2e}{hA}e^{-Alpha}$

$\frac{2e}{hA}=B_o$

$\frac{2e}{hA}e^{-Alpha}$

ni

Y   -1   -½   0   X   n

-1½ 2-X   -X   X-1   1-X ½

F-Vafa Space
12/6D Hyperbolic

M-Witten Space
11/5D Spherical

C-Einstein Space
10/4D Minkowski Flat

(Universal Cosmic Wavefunction or IEMR=Inverse-Energy-Magnetocharge-Relation for Superstring HE(8x8))

The universe is 'frozen' in M-Space at the X-coordinate for which $T(n)=1$ and imaged in the Y-coordinate as imaginary time n_i as function $B(n)$

$T(n)=n(n+1)$ defines the summation of particle histories (Feynman) and $B(n)$ establishes the v/c ratio of Special Relativity as a Binomial Distribution about the roots of the $XY=i^2$ boundary condition in a complex Riemann Analysis of the Zeta Function about a 'Functional Riemann Bound' $FRB=-\frac{1}{2}$.

A new physical quantity in 'awareness' is defined as the time differential of frequency and allows the concept of 'consciousness' to be born from the defining qualities of magneto charges. Electro magneto-monopolar 'Life' derives as consequence of self-inductions of quantum geometric entities, specified from supermembranes, macro-crystallized in electropolar self-capacitances and magnetopolar self-inductances, subsequently becoming subject to mutual cross-inductances.

The purpose of the superbranial self-replication on ever increasing scales, and until modular duality is reached in minmax boundary conditions; is to establish the multiversal nesting of the smallest within the largest - a process which constituted the beginnings of it all in the 'naked singularity' becoming defined as the Genesis BOSON in the Mathimatia of the Logos of Abba as the 'Modus Operandi' of Creation.

In the DNA

The DNA molecule, the program for all life, is based on the Golden section.
It measures 34 angstroms long by 21 angstroms wide for each full cycle of its double helix spiral.34 and 21, of course, are numbers in the Fibonacci series and their ratio, 1.6190476 closely approximates Phi, 1.6180339. It is interesting to note as the technology improves and we get more accurate dimensions the ratio keeps getting closer to phi. It now appears that the ratio of the width to the vertical offset may also converge to the same ratio.
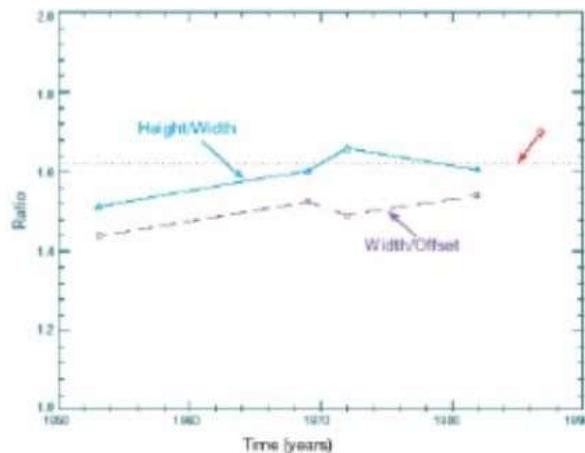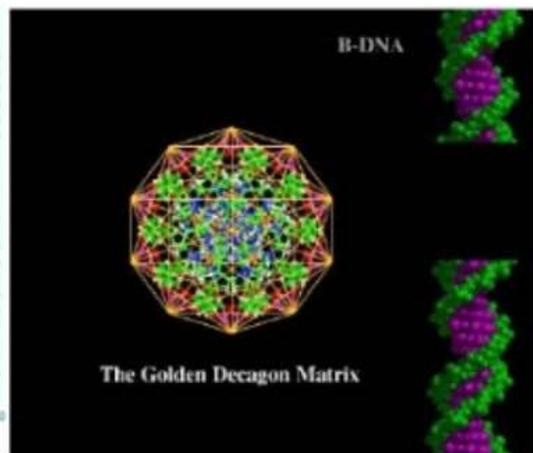

Figure 1

Figure 2

Figure 2 shows how a cross-section of the DNA perfectly fits into a decagon formed of golden elements.

The ratio becomes apparent in the frequency of bases in the DNA. Selvam (2002) using statistical tools has shown that the frequency of A,T,C,G bases in the Drosophila genome. His paper reads:

"The observed fractal frequency distributions of the Drosophila DNA base sequences exhibit quasicrystalline structure with long-range spatial correlations or self-organized criticality... The dominant peak periodicities are functions of the golden mean."

This way non-reductionist studies are opening new avenues for science to explore.

In the Cell structure

The ratio appears in certain very important structures of the cell. The hexagonal pattern of microtubules exhibits the Fibonacci feature and it is found that this pattern is made up of 5 right-handed and 8 left-handed helical arrangements.
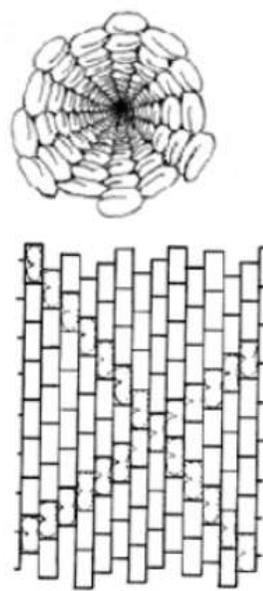
View down a microtubule! The 5 + 8 = 13 spiral arrangement of the tubulins in this microtubule can be seen.

Imagine a microtubule slit along its length, and then opened out flat into a strip. We find that the tubulins are ordered in sloping lines which rejoin at the opposite edge 5 or 8 places displaced (depending upon whether the lines slope to the right or to the left).

It is curious, also, that the double microtubules that frequently occur seem normally to have a total of 21 columns of tubulin dimers forming the outside boundary of the composite tube - the next Fibonacci number. Koruga (1974) argues for a special efficiency in the case of Fibonacci-number-related structure of microtubules that may provide advantage in its function as a "information processor". There must indeed be some good reason for this kind of organization in microtubules, since although there is some variation in the numbers that apply to eukaryotic cells generally,13 columns seems to be almost universal amongst mammalian microtubules.

Figure 3

What is Consciousness?

Answer:

The dynamic occupancy of spacetime by physicalised quantum conglomerations originating and emerging from an energy source defining nospace and notime in space and time.

An **atom** is about 99.999999999% empty space.

curiosity.com

If you removed the empty space from the atoms of all people, the entire human race could fit in the volume of a sugar cube.

Source: Institute of Physics

Space is consciousness related via an advanced quantum mechanics. Therefore you can figure out what the metaphysics or spirit concept really relates and points to. It is not dieu ex machina but machina ex dieu.

Calculation:

7.4 Billion people weigh about 518 Billion kilograms for an average weight of 70 kg.
As one proton has a mass of about 1.7×10^{-27} kg; the total mass of humanity in weight are so 3×10^{38} protons. One proton has a volume of so $4 \times (1.4 \times 10^{-15})^3 = 10^{-44}$ cubic meters and for all the protons of humanity the volume adds to about 3×10^{-6} cubic meters or 3 cubic centimeters which is a cubic size for a cube about 14.4 millimeters long.

Question:

So what is all that empty space doing...is there direct interaction between nucleons and virtual particles relating to the nature of "spin," or how the universe actually sustains itself from moment to moment?

Answer:

This is an appropriate question, which leads directly into the deepest nature of what energy is and it relates on a most fundamental way to the reality of universal consciousness. Firstly, the 'empty space' of an atom manifests as a form of 'force field' in that the interaction 'Goldstone' bosons mediate a 'force', which then manifests as the appearance of solid-state physics. So tapping a table actually taps an energy field etc. The problems with this mainstream physical interpretation and model begin right here, because the 'Goldstones' (photons, weakons, gravitons, gluons, higgs) are said to be 'virtual' that is not having a real physical existence.

This is erroneous, just as the mainstream notion of consciousness and mind being nonphysical is also not supported by a higher dimensional cosmology and physics. As an example consider Einstein's $E=mc^2$ applied to the total mass content of the universe. For a mass of say 10^{50} tons you will have an energy summation of so 10^{70} Joules. But if you now use the quantum energy, also well defined in Planck parameters, you calculate the quantum energy per space quantum, and you get far higher values for this energy.

Using the conventions (Planck Length=2×10^{-35} m, Planck Mass=2×10^{-8} kg, Planck Energy=2×10^9 J, Holographic bounds etc.) and using the Event Hubble extent of the universe, you get something like (Number of space quanta)x(Planck Energy) = $(10^{147}) \times 2 \times 10^9 \sim 2 \times 10^{156}$ Joules. Now the string physics tells you that the energy per string quantum is something like 10^{64} Joules per cubic meter as a physical manifesto of this quantum energy; whilst the energy of all (atomic) matter in space is something like 10^{-10} Joules per cubic meter. So the 'discrepancy' between quantum energy and matter energy is in a factor of so 74 (and 87 in the quantum-Planck limit). This number then becomes associated with the 'Dark Energy' and the 'Dark Matter' to explain the discrepancy.

The 'empty space' of the atom so is in fact 'spanned' by the 'virtual' energy which is dark and has a dark matter component which is defined in physical consciousness parameters based on the quantum energy parameters and especially the physical size of the electron.

This naturally allows a refined approach to fundamental physics, such as the difference between the Hydrogen atom and the neutron and how radioactive beta/neutron decay allows the primordial universe to build the table of the chemical elements. This transformation then relates to the interaction probability between matter and light in electromagnetic parameters so showing the basic electron to be a 'point particle/string' of a minimum size; but also a 'smeared out' or extended circular membrane characterised by the Fermi scale of the 'Goldstone Bosons'.

The spacial extent of the differences then defines physical consciousness as a modular dual or mirror property of the space quantum itself; namely whatever is measured as energy derived from the macro-physics becomes a reciprocated magneto-polar 'supercharge' in the form of the electronic diameter maximized multiplied by the time differential of frequency as inversed time. But this change of string/brane vibration over time is also an angular acceleration without radial extent and so you find the innermost nature of the quantum spin, which is radially independent.

Those physical definitions for consciousness then carry enormous implications of course. Namely space itself is conscious in a physical sense and any dynamic occupying space adds to a space inherent base consciousness independent of the dynamics and living entities moving about within it.

Collapsing a hydrogen atom that is forcing the electron to overcome its weakon force field of the beta decay results in a neutron star of 'degenerate electrons' and you then can observe the quantum physics in the astrophysics. So your original question regarding the empty space resolves in the transformation of energy density in space. Then you should adapt the quantum theory to the holographic universe and the multidimensional membrane physics to resolve the wave-particle duality and the quantum entanglement on both the micro-cosmic and the macro-cosmic scales to find the universal unification. The quantum entanglement can easily be seen to be the effect of the modular duality inferred at the beginning to resolve a number of apparent paradoxes, such as the Schrödinger Cat and the Chicken-Egg DNA/RNA etc. paradoxes.

References:

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*S. Hameroff; R. Penrose (2014). "Consciousness in the universe: A review of the 'Orch OR' theory". Physics of Life Reviews. **11** (1): 39–78. Bibcode:2014PhLRv..11...39H. doi:10.1016/j.plrev.2013.08.002. PMID 24070914.*