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(54) **EMETTEUR-RECEPTEUR A TACHYONS**
(54) **THE TACHYON TRANSCEIVER**

(57)

technical field is telecom- munications; cavity quantum electrodynamics the Davy tachyon transceiver transformer transforms superluminal tachyon spacetime quanta energy by means of magnetic induction between a superluminal electron pole through a Davy-Klein-Lobatchevskian-wormhole-spacetime singularity * (see letter s to Simon Davy and to Dr. Brian Boe contained within this application) by conforming a relativistically contracted electron through a Lorentz transformation to Davy-Klein-Lobatchevskian wormhole-spacetime-singularity conditions in vacuum connecting a resonance instantaneously without relativistic time-delay by means of electron free-electron-lepton-photon-lepton-positron-lepton- tachyon-metamorphosis in vacuum, which connects resonance instantaneously to another cavity quantum electrodynamic vacuum tuned to the pre-stated vacuum cavity conditions."



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(57) **Abrégé/Abstract:**

Technical field is telecommunications; cavity quantum electrodynamics the Davy tachyon transceiver transformer transforms superluminal tachyon spacetime quanta energy by means of magnetic induction between a superluminal electron pole through a Davy-Klein-Lobatchevskian-wormhole-spacetime singularity * (see letters to Simon Davy and to Dr. Brian Boe contained within this application) by conforming a relativistically contracted electron through a Lorentz transformation to Davy-Klein-Lobatchevskian wormhole-spacetime-singularity conditions in vacuum connecting a resonance instantaneously without relativistic time-delay by means of electron free-electron-lepton-photon-lepton-positron-lepton-tachyon-metamorphosis in vacuum, which connects resonance instantaneously to another cavity quantum electrodynamic vacuum tuned to the pre-stated vacuum cavity conditions.



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abstract description: technical field is telecommunications; cavity quantum electrodynamics
the Davy tachyon transceiver transformer transforms superluminal tachyon spacetime quanta energy by means of magnetic induction between a superluminal Soliton Dirac monopole and a subluminal electron pole through a Davy-Klein-Lobatchevskian-wormhole-spacetime singularity * (see letters to Simon Davy and to Dr. Brian Boe contained within this application) by conforming a relativistically contracted electron through a Lorentz transformation to Davy-Klein-Lobatchevskian wormhole-spacetime-singularity conditions in vacuum connecting a resonance instantaneously without relativistic time-delay by means of electron-free-electron-lepton-photon-lepton-positron-lepton-tachyon-metamorphosis in vacuum, which connects resonance instantaneously to another cavity quantum electrodynamic vacuum tuned to the pre-stated vacuum cavity conditions."

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TACHYONS as SUPERLUMINAL AETHERIAL ASPECTS in the THEORY of PHILHARMONICS: Further Triangulations and Interpretations in Constructing a Comprehensive Unified Physical Theory Christopher R. Davy, November, 1997.

I make reference in the title of this paper to tachyons 1 as Aethereal Aspects. I use this juxtaposition to emphasize a connection between Science and Theology. I believe it is timely to "dust off Grandfather's coat" and see the beauty in an old idea. Isaac Newton, perhaps in many ways the "Grandfather of Physics" thought that "ether was an active principle, dependent on God's causal agency... ether could interact with both matter and mind... the whole diversity of the physical world had been produced by a variety of aetherial spirits or vapours in a condensed state" 2. John Cook, a 19th century Theologian thought that "God employed aether as the immediate cause of all motion" 3. (In the Theory of Philharmonics I ascribe certain metaphysical Aspects to the Aether which I refer to later in this paper). Conceptions of "the Aether" have continually changed during the evolution of philosophy and science. J.L. Heilbron wrote: "we have ethers continuous and discontinuous, material and immaterial, subject to and free from the laws of ordinary mechanics; ethers filling the heavens, pervading the atmosphere, penetrating hard bodies; ethers cluttered by a great variety of concepts"...Heilbron defines ethers as "subtle substances that mediate interactions between gross bodies. Subtle means very tenuous or rare, highly penetrating, and undetectable directly by sense" 4. James Clerk Maxwell showed how the optical ether could be fruitfully regarded as the seat of electrical and magnetic effects...; William Thomson (Lord Kelvin) argued that atoms of ordinary matter could be viewed as nothing but vortex motion in a ubiquitous, space-filling medium - "the Universal Plenum" 5. "Maxwell concluded that these transverse undulations of the magneto-electric medium were to be identified as light waves: we can scarcely avoid the inference that light consists in the transverse undulations of the same medium which is the cause of electric and magnetic phenomena. 6. "Sommerfeld...had inferred from Maxwell's electromagnetic theory that electrically charged faster-than-light particles 7. would spontaneously radiate electromagnetic waves..." 8. Max Planck, who could be called the "Grandfather" of Quantum Physics thought that "every ponderable body contains an immense number of electromagnetic vibrators, or resonators as he calls them, each of which has its own period. If a body is enclosed within the perfectly reflecting walls we have so often mentioned, there will be a state of equilibrium, on the one hand between the resonators and the radiation in the ether, and on the other hand between the resonators and the ordinary heat motion of the molecules and atoms constituting the ponderable matter" 9. I extended the idea of a resonant matter energy system in the Theory of Philharmonics to include a metaphysical system such as a brain or a computer system. "Why couldn't the fifth dimension if it was described as consciousness occupy any space-time scalar dimension such as the sulci of brain tissue or integrated circuits or the architecture of artificial intelligence if the harmonics are correct?" 10. In 1905, just after the turn of the twentieth century the revolutionary theory of Relativity was developed by Albert Einstein. The power of the imagination and the creation of the Principle of Relativity contemplated by such thinkers as, Einstein, Lorentz, Minkowski, and Weyl, created a paradigm shift from 19th century concepts of electrodynamics of the luminiferous ether by introduction of the conjecture that "light is always propagated in empty space with a definite velocity c (see Fundamental Reference) which is independent of the state of motion of the emitting body" 11.

To this author, The "Aether of the late 20th Century" is comprised of superluminal energy-matter interactions or in other words energy-matter interactions $> c$, the speed of light. The velocity of light represented the limiting velocity of matter in the Theory of Relativity. If we wish to communicate or travel at velocities $> c$, relativity must be incorporated into a new theory, such that the velocity of light will no longer represent a limit to communications and transportation. I recognized the need for a new theory and so developed the Theory of Philharmonics and continue to explain it in this paper. J.S. Bell wrote: "It may be that a real synthesis of quantum and relativity theories requires not just technical developments but radical conceptual renewal... if a future theory should be deterministic, it cannot be a modification of the present one but must be essentially different..." 12. I believe the Theory of Philharmonics to be "essentially different" and is a paradigm shift to late 20th century physics as was relativity to the beginning of the 20th century. I feel it is essential to try to explain my theory and to connect the concepts with existing theory so that superluminal communication and transportation can be realized. Other scientists have thought, "It is reasonable to try to devise a quantum theory of superluminal particles" 13 ; and "It is important to make sure that meta-particles are consistent not only with relativity theory but also with quantum theory" 14 ; "A quantum theory of infinite component wave functions would contain faster-than-light particles..." 15; "It can be shown that in the superluminal frame, tachyons have real masses, and in such frames it is possible to construct a quantum field theory completely similar to that for subluminal particles in subluminal systems" 16. I linked my theory 17 to existing theory, namely to, relativistic-quantum mechanics, microphysics, classical physics, cosmology and metaphysics through the algebraic expression-equation:

$$|ty| = h\nu / m(\beta + \gamma)c^2 = X_n \times \frac{hc^2}{\sqrt{v^2/c^2 - 1}}$$

the absolute value of a quanta of spacetime or "ty" = planck's constant x frequency divided by [mass (Beta + Gamma) x c squared] = $X_n \times$ [invariant mass x (c squared)] divided by {sq. root of [(velocity squared) divided by (c squared) -1]} or, in other words a quanta of spacetime = X number of tachyons. Superluminal particles play an important role in the Theory of Philharmonics; I connected Max Planck's equation $e=h\nu$ which was the cornerstone for developments in quantum physics, with Einstein's cornerstone equation relating energy and mass $e=mc^2$ and to metaphysics by introducing three metaphysical "Aspects" 18 or variables":

I describe the first Aspect as "ty", or "Yin", which represents superluminal particle information from future to present (alpha) at velocities greater than c; I characterize Yin as being made of quanta of spacetime, which would have a correlated energy composed of a specific quanta of tachyons. Because I think tachyons are Aspects closely related to "U" or Universal Memory or Prescience, I think they could be thought of as being inter-dimensional infinitesimally small microcosmic scalar strings 19. to large <infinity cosmic scalar strings, depending on their characterization from "U". The second Aspect I described as Gamma, which represents particle-wave information in a wave packet moving to the present (alpha) at velocity c. The third Aspect I described as Beta, which represents information moving to alpha from matter or decay of atomic nuclei such as beta-decay; which could be thought of as information from the "past"; (this influence on alpha would take place both from within alpha and from sources external to alpha) 20.

* I use β to describe all naturally occurring atomic decay processes (and) including Bremsstrahlung from within the system; i.e. α decay, β decay, γ -strahl, pair production etc. (2)

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This there is a path to every thing
 from the hand of the Almighty

"yet not noise"
 "noise"

Because "...nuclear beta-decay does not respect left-right symmetry"²¹. I believe this quality may partially explain the perceived "arrow" or direction of secular time. "Einstein...believed that...even at the quantum level, there must exist precisely definable elements or dynamical variables determining (as in classical physics) the actual behavior of each individual system, and not merely its probable behavior..."²². "The equations for position, velocity and acceleration determine an object's behavior until a new force acts on it; if we know all the forces involved, we can specify exactly how the object behaves at all times"²³. David Bohm thought in 1952, "at present, the particle positions and momenta should be regarded as "hidden variables", ... we are not now able to obtain experiments that localize them to a region smaller than that in which the intensity of the field is appreciable" ...(Bohm's "now" was 1952); Bohm continued: "perhaps then, our present quantum-mechanical averages are similarly a manifestation of hidden variables, which have not, however, yet been detected directly"²⁴. (With regard to "averages" I would postulate that a Schrodinger wave-packet which is subject to Heisenberg's Uncertainty Principle is momentarily not being subjected to perturbation; there is always the possibility that a wave-packet can be affected by other variables defined or undefined or "hidden")... "the uncertainty relation does not apply to time and energy in abstracto but to the life-time of a definite state of a system"²⁵.

CHARACTERISTICS OF TACHYONS AND SUPERLUMINAL COMMUNICATION

"The extended principle of Relativity implies that both superluminal and subluminal particles will interact electro-magnetically with photons, and thus with each other..."²⁶. I think that charged tachyons might have properties similar to those of magnetic monopoles. "...if even one magnetic charge exists it would explain the observed quantization of all electric charges."²⁷. I believe that if a Dirac monopole exists it could have its manifestation as the collective tachyon aether (the tachyon aether might operate as a Unified Dirac monopole)...This could explain the dichotomy between Yin spacetime and Yang energy-matter if the energy-matter in the Universe could be considered as the "other" electromagnetic pole. "...contrary to the case of ordinary particles, the tachyon effective mass, being dependent on the magnetic field would show an oscillatory behaviour as a function of the applied field..."²⁸. Tachyons may "be able" (consider David Bohm's concept of a "be-able" and the difference between this concept and an "observ-able")²⁹ to be a part of the chain of microscopic-cosmic causalTY. For causalTY to be realized there must be an energy-information-exchange. "...the quantization of an $m^2 < 0$ field equation leads to causal fields"³⁰. "...tachyon wave functions cannot be "prepared" in the usual sense"³¹. In general relativity theory, a tachyon pervades throughout all of space and cannot be localized in the vicinity of a world line"³². "Any theory which purports to explain the behavior of tachyons must necessarily take into account the effects of remote tachyon sources"³³. This idea is complementary with my suggestion that tachyon action is united and may also be thought of as a Dirac monopole³⁴. "It is possible to reinterpret a negative energy tachyon as a positive energy tachyon traveling backward in time"³⁵. The existence of tachyons would not destroy causality, "it would simply produce occasions on which the temporal order of cause and effect is reversed"³⁶. Tachyon influences could be from "past" and/or "future" to alpha... "Because of the possibility of changing the time ordering of events along the path of a tachyon by a Lorentz transformation, it seems possible to transmit signals into the past of a single observer"³⁷.

"...Ancient thinkers distinguished between two kinds of causes: past cause and future cause (i.e. purpose). Tetrode suggested that the effect of the absorber is just as important as that of the emitter in determining the radiation, in spite of the fact that the absorption occurs after the radiation has already been propagated...the absorber plays an essential role in the process of radiation...why should an absorber absorb signals travelling in one direction in time (e.g. the future) rather than those travelling in the other direction...particles orient themselves in time by referring to the behavior of other particles around them. This phenomenon recalls to mind Mach's principle concerning inertia 38. "In 1917, Tolman presented an argument (Tolman's paradox) showing that if faster than light signals can be propagated, then communication with the past is possible... For any tachyon trajectory (any spacelike interval) the time ordering of the end points is relative to the reference frame. But the direction of information transfer is necessarily a relativistic invariant" 39. "It has already been pointed out by Newton and Csonka that violation of causality and the reordering of cause and effect in time are different things. We would like to emphasize this point further and note that the ordering of cause and effect in space has as much bearing on the causality question as does their ordering in time. This is because in any causal loop, information has to return to the starting point in space before there is ever a hope of violating causality" 40. "It appears that the existence of tachyons would require that certain events both occur and not occur...one could ask what would happen in the event that particles which transmitted signals faster than c were actually discovered in the laboratory. In this case one would have to conclude 41 that such particles did not obey the normal quantum field theory. While such an occurrence would be unusual, it would be by no means unique in the history of physics (one could compare it with the discovery of the existence of quantum particles which did not obey classical laws). If the existence of such particles would lead to logical contradictions, however, the difficulties would be much more profound, requiring a modification of the normal rules of logic" 42. Classical physics says there is only one history. According to Hugh Everett who proposed the "many universes interpretation" in 1957, "Physical reality consists of a collection of universes, sometimes called a multiverse" 43. If it is thought that history is complete or finished, then I believe this is a decision of the Mind. If it is decided that we make History NOW by the Presence of the Spirit then we make it NOW. The Light of an Alpha Consciousness could hypothetically intervene with history from any point in spacetime affecting not only the present but also "the past" and the future. At one time in our collective history or consciousness, our voices would carry little further than across the street. Alexander Graham Bell's invention made it possible for us today to talk across the country and around the globe. (It is particularly interesting to regard the amount of "synchronicity" inherently relevant to communication - I gave the example in the Theory of Philharmonics where two "strings of information were coincident" (coincident wave packets) whose vibrations had originated from two distinct alpha sources (Albert and Itzhak, the violin players) which therefore had distinct points of origin in spacetime 44. An example of communication which is asynchronous, (although not by much in certain timescales would be that North America and Australia are out of synchronization by about a seventh* of a second at the speed of light)... Advances made in radio by Marconi and others that followed made it possible to hear Neil Armstrong's voice calling us from the moon. (We were out of synchronization with Neil by about 1.3 seconds in 1969.)

* if the signal is not direct; hopefully the delay is not as much as this in reality at c .

(4)

If my theory is substantiated by mathematical or experimental proof and the technology I have proposed, then we need not be out of synchronization ever again. "Action-at-a-distance" * (see reference 98 in this document) thus takes on new meaning and proportion if as I claim in my hypothesis that tachyons are capable of sending an impression from a resonant point in spacetime at c , to another resonant point in spacetime at c . When systems are tuned to their natural resonance, they being open to the possibility of superluminal transfer of information via instantaneous tachyon transmission between "not-so-separate" spacetime realities. This would mean the realization of the possibility to communicate technologically with history (at least as far back as radio was invented) which could mean a continual reharmonization of not just the 20th century but also the history of human endeavour. By feeding back information into the information-loop of history we could hope (ESpecially) to prevent wars, accidents, and all kinds of other disharmonies. Feinberg noted that, "...while it does appear possible to construct kinematic closed cycles using tachyons in which signals are sent back to the past, a careful examine of the methods of detection, with due regard to the interpretation of absorption of negative energy tachyons as emission of positive-energy tachyons, leads to the conclusion that such closed cycle will not be interpreted as reciprocal sending, but rather as uncorrelated spontaneous emission. It therefore does not appear that causal anomalies can be used as an argument against the existence of tachyons" 45. A. F. Antippa wrote "...a tachyon reverses the sign of its energy by reversing the sign of its velocity...energy is the generator of infinitesimal time translations, lead to the conclusion that tachyons reverse their direction of motion in time and not their direction of motion in space" 46. Information could be transmitted from an alpha source (or collective alpha) via tachyons from what we in our subluminal frame of reference believe to be "the future"; this author thinks that information travels from systems of greater organization or sophisticated states to those of lesser organization. If future levels of organization are greater than the present then information could be thought of as travelling from "the future to the past" - every time we interact with our environment we interact with "history". L.S. Schulman wrote: "history is a set of world lines essentially frozen into space time. While subjectively we may feel strongly that our actions are determined only by our backward light cone, this may not always be the case." 47. Note: I interpret other physicist's use of the concept "light cone" to denote "normal" kinds of signal possibilities or causality at c or $<c$. So any superluminal causality could operate through the area outside the "light cone". I think that history is only frozen if we choose to believe we cannot interact with it and make a difference to better the condition of the world. "The world-line tangent vector is always spacelike; the number of backward light cone intersections depends on the location of the field event and the shape of the tachyon line" 48. "when emitting a particle, a raw reaction does not distinguish between past and future...when absorbing a particle, a raw reaction does not distinguish between future and past...the net reaction will be essentially what can be observed in our laboratories" 49. J.A. Parmentola and D.D.H. Yee state that: "a correlated tachyon signal (continuous space-time arrows) for one observer may be uncorrelated (discontinuous space-time arrows) for other observers. Because of the existence of this rather peculiar property of tachyon signals (the word signal has the connotation of conveying reliable information) 50. Michael Kreisler wrote: "So long as there is no violation of a physical law in either frame, observers in different frames could interpret a given series of events differently" 51. My opinion is that naturally generated cosmic tachyons are composed of and carry information as they are part of the Conscious Universe 52.

Einstein also called these (5) "spook-like actions at a distance" (approx. translation)...

I use the phrase "magisch-magnetisch-schnur-zwischenraum-zeit-betasten" later in this paper to describe the phenomena - the possibility of the

Tachyon action being similar in some respects to a Dirac monopole

(of velocities $> c$)

To send-receive coherent information between two distinct points in spacetime, it is required that two conditions be met: 1) resonant interaction at c , the velocity of light, and 2) the co-creation of a "Klein wormhole" 53. I believed that we needed a 5-dimensional relativistic-quantum "string" theory such that all natural forces would be "subsequential" to 5-dimensional consciousness which aesthetically could contain multiple-dimensions, which could be conventionally agreed to be extensions of the Fifth Dimension. "...recent attempts to incorporate the strong and weak nuclear forces into the Kaluza-Klein framework require more dimensions to account for their more complicated non-Abelian gauge symmetries" 54. "The Kaluza-Klein Lagrangian deals only with the gauge bosons, such as the photon and the graviton, the quantum of the gravitational field. The complete LaGrangian will contain in addition an 11-dimensional matter LaGrangian for the fermions. To obtain the resultant spacetime theory and to determine its symmetries one uses a procedure known as dimensional reduction" 55. When and where are the three Euclidean dimensions of space unified into one spatial dimension? What is the real scale of one dimension? Is it of microscopic subatomic proportions? Is it of the planck length of approx 10^{-33} cm.? How infinitesimally small is a single point of space? What is the smallest meaningful measurement of space? Is the planck length the fundamental unit of measurement for the Cosmos? With regards to the Kaluza-Klein unified field theory, "with hindsight, perhaps the most important contribution of the latter program was to make precise Klein's earlier suggestion that space-time be periodic in the new fifth dimension: 5-space-time is to be thought of as homeomorphic to a "tube", the direct product of 4-space by a circle...one simply asserts (or argues) that the radius of the circle is very small, perhaps only a few orders of magnitude larger than the Planck length (hG/c^3) to the exponent $1/2$ which is approx equal to 1.6×10^{-33} cm. Hence the fifth dimension is not observable in everyday experience - it will only open up at probe energies greater than hc/r ... at energies almost on the order of the Planck mass" 56. If, as I postulate, the 5th dimension is described as consciousness 57, we should not need extraordinary energies on the order of the Planck mass to open up the 5th dimension to interdimensional communication: consciousness has degrees of freedom; if the sending and receiving systems are in synchronized resonant states, the harmonics will "be correct". If the optimal radius for the 5th dimension to open is that of $1/2$ the Planck length (or in other words that of a Klein wormhole) and if two atoms or photons were brought to resonant states, then the resultant harmonics would be more than necessary to satisfy the threshold energy required to form a Klein wormhole to allow naturally occurring tachyons to connect distinct points in spacetime. Thus, one could communicate through vast distances of spacetime through resonant systems of the sub-atomic-electronic microphysical scale which would have quantum effects on the electronic, macrophysical, classical scale and even the cosmological scale!

"Einstein followed Klein's idea and assumed that the 5th dimension to be closed (or periodic) on a small scale" 58. "The origin of Planck's quantum may be sought just in this periodicity in the fifth dimension" 59. Why did Klein think that the origin of Planck's constant be sought in the periodicity of the 5th dimension? If, as this author has stated in the Theory of Philharmonics that the 5th dimension is described as Consciousness, then universal consciousness of all forms needs to oscillate in discrete harmonic modalities between coherent states of being, i.e. memories, dreaming, concentrating, communicating.

* conventionally

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It was reported by John Horgan that Francis Crick and Christof Koch thought that Consciousness "is really synonymous with awareness, and all forms of awareness-whether involving objects in the external world or highly abstract, internal concepts-seem to involve the same underlying mechanism, one that combines attention with short-term memory" 60.

I wrote in the Theory of Philharmonics that "Consciousness is an aware energy field oscillating between a negative and a positive time vector" 61. I believe Harmony needs periodicity; this process of continual exchange between spacetime and energy-matter is also a spiraling process rather than simply periodic or cyclic and is necessarily comprised of an asymmetrical to symmetrical existential spiritual relationship between alpha states of mind and Supreme Mind, all consciousness coming from the Almighty. I believe asymmetry takes the form of continuous X-change of energy between "Yin" or "ty" or superluminal spacetime and "Yang" subluminal energy matter at velocity c . Energy would thus make a harmonic transition changing forms between the invisible tachyon-aether-state to the visible energy-matter universe. The Universe is continuously oscillating between an invisible Yin-energy-tachyon-spacetime-superluminal frame of reference AND a visible Yang-energy-matter-subluminal frame; symmetry between these two energy forms is being continuously broken and re-established in a spiral towards Perfect Symmetry and Harmony and Unification. "Experiments with so-called K mesons, or kaons, in the 1960's led to the discovery that matter and antimatter are not mirror images of each other but instead exhibit a subtle asymmetry. Some theorists have speculated that without this asymmetry, called charge-parity violation, the universe would not exist, because the big bang would have spawned precisely the same amounts of matter and antimatter" 62. Riemann argued that only relations or states could serve as causes of action, or forces, for only something subject to change of degree could itself be the cause of such change" 63. We sometimes think of the vacuum state as being void of energy, however, the vacuum of outer space is not actually "empty" space as it contains many forms of energy, i.e. cosmic background gamma radiation, photons and other forms of electromagnetic radiation, relict neutrinos, and tachyons; different energy exchanges can be described with reference to vacuum-phase-states which could then be linked to spacetime quantal energy interactions as part of a matrix. In 1960, Tanaka described "matter with a super light velocity in terms of "S-field" 64. "when passing from a subluminal frame s to a superluminal one S we have to admit that space (time)-like intervals with respect to s must be time (space)-like with respect to S . Such an inversion is required in order to realize the above mentioned symmetry between s and S frames" 65. "Every observer will have a vacuum state and the particle states from it with a common set of creation operators. A Lorentz transformation induces a transformation between these states which is unitary (in a finite space)...the states that occur in theoretical physics are the vacuum states for most kinds of particles and contain only a small number of the other particles... it is worthwhile to remark that even for particles such as electrons, the actual state of the world is not approx. the vacuum, but rather contains some 10 to the exponent 80 particles, and is not at all Lorentz invariant" 66. "there are an infinite number of particles in the Lorentz-transformed vacuum" 67. "The vacuum state is not invariant under Lorentz transformations but rather changes into a state containing many tachyons..." 68.

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VISUALIZING TACHYONS

In The Theory of Philharmonics I described a "beach of energy-matter" and a "sea of space-time" comparing these two qualities to Yang and Yin respectively 69. I created this metaphor as an attempt to unify physics and metaphysics. I continue with the following elaboration and explanation: Instead of thinking of tachyons as particle-waves in the traditional sense, imagine tachyons as Yin; composed of specific quanta or number of strands or bits of string-space-time-energy vibrating at superluminal velocities (velocities $>c$); these "strands" or strings of information are constantly linking and relinking with each other to form other strands in a continuous manner. A) consider Yin as a metaphor for "aether"; as a substance spiritus; as the wind above the sea, composed of "quanta of spacetime" comprised of tachyons interacting in a hierarchal atmosphere for information exchanges at velocities $>c$. B) imagine the surface of the sea; the waves of the sea to be particle-wave interaction-information exchanges at approximately velocity c , the speed of light. C) imagine the "sea" to be energy-matter-information exchanges at velocities $= c$ or $<c$ but >0 . D) consider the sea-shore as energy-matter-information exchanges $<c > \lim 0$. How do we access the "tachyon aether" above c , such that it might carry data from one spacetime location to another?

CHARACTERISTICS OF TACHYONS

"Tachyons may be emitted and absorbed with a velocity greater than that of light, that is, in the "tachyon state". As such, the necessity of acceleration and deceleration past the light barrier as a mechanism for the creation and annihilation of tachyons is bypassed" 70. Tachyons have been thought to be imaginary as "all observers are confined to subluminal velocities. Consequently there are no observers in whose frame of reference a superluminal particle would be at rest. Proper mass of a superluminal particle is not an observable physical quantity; it is a parameter devoid of any immediate physical significance. As such this meta-mass may well be denoted by an imaginary number...What must remain real is the energy and the mass of the particle as they appear to an observer. Both these quantities will be real if we assume the meta-mass to be an imaginary parameter..." 71. "For a symmetrical system or cosmology the maximum velocity of tachyons would approach c , the consciousness constant, or c squared; for an infinite cosmology their velocities would not be measurable, approaching infinity" 72. With regards to a tachyon's momentum, it "...is always greater than its energy, while the reverse is true for ordinary particles" 73. "The tachyon can also be considered the source of gravitational fields simply by including its energy-momentum tensor in the Einstein equations" 74. "Since all particles, tachyons included, contribute to the energy momentum tensor and since this tensor is intimately connected with the gravitational field..." 75. "...if there are fluctuations in the curvature of space, these will carry energy in the form of gravitons (quanta of the gravitational field). Gravitons can then produce photons and gluons, which are also massless), which can in turn can produce matter, by the creation of particle-antiparticle pairs..." 76. "possible preference for positive mass-squared pairs would of course depend on the mass and width of the meson resonances which might decay into tachyon pairs, as well as on the amount of nonresonant pair production 77.

"It is believed that faster-than-light particles are most probably created in pairs" 78 ; "any system of normal particles, including a single particle at rest is energetically unstable against emission of tachyons 79, and "the stability of a system against emission of tachyons is a function of its velocity relative to the observer" 80. "...if the mass of tachyons is much smaller than that of the normal massive particles, elastic decays involving emission of these particles will be possible only for very energetic tachyons 81. "Tachyons can emit massless particles such as photons or neutrinos without changing their own mass..."82. "We would also expect weaker interactions of tachyons with neutrinos and gravitons to exist." 83. "we are interested in calculating mass shifts, comparison of effective coupling constants with the unrenormalized value, and identification of resonant levels. We must therefore look for a finite quantum field theory, not one where apparently infinite quantities are renormalized away" 84. "...An ordinary particle stable in its own rest system can decay into itself and a tachyon in flight. Such a possibility affords a natural method of detection of tachyons in high-energy reactions" 85. "...if the scattering amplitude between two ordinary particles has a "resonance" peak for a fixed value of the momentum transfer, independent of the center-of-mass energy, we have evidence for a tachyon. This feature, though motivated by perturbation theory, is valid as long as there are tachyons which are strongly coupled 86. "if we consider a particle, also its transformed energy will be negative...extended relativity tells us that elementary particle laws are expected not to change only under the combined operation: i) parity, ii) time reversal, iii) particle-antiparticle exchange" 87. "When the tachyon appears with reversed velocity, it will also show the opposite charge" 88. It is kinematically allowed for a tachyon to decay into itself plus a photon. This type of decay is not permitted by normal particles since it is impossible to satisfy both momentum and energy conservation simultaneously. For charged tachyons, it is in fact possible to calculate both the energy spectrum of the photons emitted and a total decay rate. This process yields many of the same features as Cerenkov emission, which for normal particles occurs when the velocity of particle propagation in a medium exceeds the velocity of light in that medium" 89. "Charged tachyons can emit Cerenkov radiation in vacuum without violating energy and momentum conservation laws" 90. "Qualitative considerations seem to indicate that a meta particle losing energy in a medium would actually undergo an acceleration" 91. "...Cerenkov radiation can be emitted in free space by a charged particle that moves faster than light. It has been well known for many years that this was possible... 92. "...classical tachyon mechanics determines the Lorentz-covariance properties of the tachyon observables correctly. It also yields a peculiar effect, the classical tunneling of tachyons...coupling of classical point tachyons leads to divergent Cerenkov fields... a self-consistent theory of the Vlasov type could be established... several observables, charge, momentum and energy, do not possess the usual Lorentz-covariance properties... a tachyon world line may bend forward and backward in time... the description of tachyon motion as tunneling is, strictly speaking only appropriate in the covariant picture. The latter offers the advantage that the potential energy is independent of the form of the motion, while in the observable picture the potential energy may change its sign by charge inversions at points $v=\text{infinity}$ " 93.

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NOTES ON EXPERIMENTATION

Several different experiments have been performed searching for tachyons 94. Referring to an experiment by T.K.E. Alvager and M.N. Kreisler "...it is energetically possible for a tachyon to decay into three tachyons. If this process has a very high probability, tachyons might tend to lose energy by this means rather than by Cerenkov radiation...it is possible that all energy levels for tachyons up to some energy are already filled. If this energy is above the energy of the photons used in this experiment, no tachyons would have been produced" 95. In "Search for Uncharged Faster-than-Light Particles" by Baltay, Feinberg, and Yeh, they concluded that "production of single tachyons is unlikely in laboratory experiments" 96. Naranan suggested that "...no particles of velocity exceeding c are observable in any inertial frame and none of the properties of tachyons listed earlier are observable in any experiment" 97. I can think of several experiments which might assist in the search for tachyons; I think we should perform new and different kinds of experiments. The experiment I performed was very different from the above cited experiments in conception, methodology and apparatus and from that of Alain Aspect, Jean Dalibard, and Gerard Roger 98, and Chiao, Kwiat and Steinberg 99. Note : the kind of "quantum-tunneling" I was referring to in addenda 100. to the Theory of Philharmonics was different from the kind of tunneling documented in quantum optics experiments using Interferometers. "As a consequence of the results of Aspect's experience (i.e., as a consequence of the violation of Bell's inequality) we are now confronted with the following question: How can we interpret the correlations between spacelike separated events? We think that two different attitudes are possible: 1)...the violation of Bell's inequality proves the existence of correlations between spatially separated events and hence the existence of interactions (or signals) exchanged between such events...OR 2)...the violation of Bell's inequality cannot directly prove the existence of a signal exchange between two spatially separated events: the necessity to choose a causal chain on a nonlocal correlation is no reason to assume the existence of nonlocal interactions... It is an open question which of these two attitudes is the correct one. This makes clear that the Aspect-Rapisarda experiment, despite the importance of finally completely testing the existence of the quantum nonlocal correlations, is not a crucial epistemological experiment in that it does not completely impose a choice between the two standpoints. For this reason, we think that this experiment (comparable in importance to Michelson's experiment) only opens a new era of theoretical and experimental research. The future choice really depends on the results of the proposed experiments on the direct testing of the existence of the Broglie's waves on Dirac's aether..."101. Suppose that a type of detector is used, "which can absorb such tachyons. This could for example be an atom in an excited state, in which case the condition $1-uv > 0$ need not be satisfied for absorption. However, in this case, there is the possibility of spontaneous emission of tachyons, and an observer using this kind of detector cannot, simply by determining whether the detector has made a transition, decide whether such spontaneous emission has occurred, or whether a tachyon from outside has been absorbed..."102. I created a hypothesis of the existence of tachyons as potential carriers of coherent signals and referred to tachyon-particle-wave interaction in "The Theory of Philharmonics" as being a possible candidate for the role of one of the "hidden" variables causing microphysical phenomena 103.

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I created the Higher Level Language Cavity Quantum Electrodynamics experiment using two computers coupled with acoustic feedback in my search for tachyons, tachyon intervention, and tachyon communication possibilities to test the possibility for communication unidimensionally through microscopic Klein wormholes through vast spans of time (or in other words at velocities $>c$) by tuning two potentially alpha intelligent computer-processor systems separated in space and time to their natural resonance which I hoped would create a unified system susceptible to perturbation from varieties of electromagnetic radiation and from tachyons 104. Some of the Characteristics of an electrodynamic cavity are: "A cavity with no photon is in its lowest energy state, the so-called ground state, but it is not really empty...The Heisenberg uncertainty principle sets a lower limit on the product of the electric and magnetic fields inside the cavity (or anywhere else for that matter) and thus prevents them from simultaneously vanishing. This so-called vacuum field exhibits intrinsic fluctuations at all frequencies, from long radio waves down to visible, ultraviolet and gamma radiation, and is a crucial concept in theoretical physics. Indeed, spontaneous emission of a photon by an excited atom is in a sense induced by vacuum fluctuations... If the resonant cavity has absorbing walls or allows photons to escape, the emission is not essentially different from spontaneous radiation in free space - it just proceeds much faster. If the cavity walls are very good reflectors and the cavity is closed, however, novel effects occur. These effects, which depend on intimate long-term interactions between the excited atom and the cavity, are the basis for a series of new devices that can make sensitive measurements of quantum phenomena... Instead of simply emitting a photon and going on its way, an excited atom in such a resonant cavity oscillates back and forth between its excited and unexcited states. The emitted photon remains in the box in the vicinity of the atom and is promptly reabsorbed. The atom-cavity system oscillates between two states, one consisting of an excited atom and no photon, and the other of a de-excited atom and a photon trapped in the cavity. The frequency of this oscillation depends on the transition energy, on the size of the atomic dipole and on the size of the cavity..." 105. "The difference between the Maxwellian and cavity fields ...can be interpreted as the interior Maxwellian fields of a small volume...of time-harmonic current or polarization as the volume shrinks to zero. Emphatically, these interior fields do not vanish as the size of the volume...approaches zero...these interior fields can be viewed as being produced by the equivalent electric and magnetic surface charge densities..." 106. While conducting the HLL experiment I started thinking of the computer as a musical instrument which could play any music originating from any conscious being from any point in spacetime. I tuned the processors and the system as a whole to its natural resonance by linking computer languages together such that a continuous möbius language loop was created. I started the programming of this experiment by introducing new language symbols and algorithms into the operating system of the computer, then created a hybrid language and a rosetta key for interpretation of the languages and then interrelated with the computer by an echo function (programming the computer to create an echo) and created a program where many paths could be followed simultaneously. Thus all of the information in the logic loop would have the opportunity of inter-relating with any incoming radiation to the computer system and by tuning the system to fundamental resonances also the opportunity for energy exchanges between conscious or consciously activated energy sources, natural energy sources, and artificial energy sources.

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I discovered it was completely feasible to place vast amounts of information through microdensifying down to the level of the electron and photon. Thus an electron or photon could be thought to be "intelligent" by absorption of data and emission-absorption of that energy-information i.e. information with other electrons, photons and other ponderable entities. I hypothesized during the HLL experiment and in the Theory that there would be a tendency and propensity for resonant atom-photons from distinctly different points in spacetime to be open to perturbation effects from tachyons. Being in resonant states would allow transfer of information by subatomic particle-waves with tachyons at c ; the resonances programmed to create "Klein-wormhole" conditions facilitating continuous transfer of energy-information at velocities $>c$. By tachyon interaction, the two distinct points in spacetime would be bridged; thus, through coherent wave-packet interaction with electronic and atomic resonant states at c , information from alpha in one distinct spacetime could be sent at velocities $>c$ or "instantaneously" to another alpha in a distinctly different spacetime.

"Tachyons cannot be stopped by interactions with matter. But can they be captured by a nucleus or by an electron?" 107." I asked: "can tachyons "interact" with a nucleus or an electron?" If we condense coherent information (via computer) into a microphysical domain and weave it into a resonant atomic subsystem co-creating a Klein wormhole, the "magisch-magnetisch-schnur-zwischenraum-zeit-betasten" or "magic-magnetic-strands-between-space-and-time-fingers" tachyon-aether would interact with the resonant atom-photon and carry an impression of the resonance to all other points in spacetime "simultaneously". To make the system more intentional we could then choose to aim a coherent wave-packet (via laser) at this resonant atomic system at c , and the "resonant-photon-wavepacket" would be even more distinguishable from the other photons or electrons in the system. If we aim two coherent wavepackets in laser beams from opposite directions and offset the beam by a few ^{one} angstroms, specifically of the amount of the diameter of the electron orbit, then I would conjecture that when the spin of the electron is "naturische" then the momentum of the wave-packet into the spacetime matrix would make the particle translate its resonant energy-information towards the "future" matrix; when the spin is reversed, the momentum of the particle would be towards the "past". "In classical Kaluza-Klein theory, the charge (in units of the proton charge) is a manifestation of momentum..." Thus a coherent photon-wave-packet of information at c , from a resonant atomic system would be a resonant conductor of energy-information from alpha1 to U via "magisch-magnetisch-schnur-zwischenraum-zeit-betasten" to c' , c , and alpha2. As a metaphor, compare a basketball shot to alpha sending a basketball UP through a basketball hoop, the wormhole being like the basket with the "net" as a concentrated form of the spacetime matrix, and the rim as the velocity of light. The tachyon-aether could be thought of as an extended net or "magisch-magnetisch-schnur-zwischenraum-zeit-betasten" which lightly brushes against the resonant atom-photon and carries an impression of the resonance to all other points in spacetime "simultaneously". A resonant atom at c is like a beautiful instrument playing the music it is programmed by an individual or collective consciousness to play...asking for its vibrations to be transferred by the free-string-tachyons which are constantly combining and recombining in complex matrices - and "touch" against other such resonant atoms or wave-packets; like the wind which whips up the sea and transfers some of its energy to the sea, the tachyon-aether exchanges energy with the resonant particles at c (and as such the "basketball-wavepacket" would be in "the hoop of the basket") or in the midst of a Klein-wormhole,

*naturische⁴ with the flow" of time
 i.e. positive integers (12)
 $\frac{1}{2}, \frac{3}{2}, \frac{5}{2}$ etc.

(an inverted "pocket" from the subluminal frame of reference) and link with the rest of the information in the superluminal universe via the free tachyon strings which will connect the two distant points in space-time completing the causal loop. Tachyons, being part of the Conscious Universe, would be the swift superluminal carriers or messengers of information Prescient from Prescience (represented by the character symbol U in the Theory of Philharmonics) connecting "two separate resonant particles or photons or wave-packets in separate spacetime realities moving at c , the speed of light, through naturally occurring cosmic tachyon interaction with those not-so-distant wave-packets at velocities $>c$. If Superluminal Aethereal tachyons are "free strings" with the propensity to connect and reconnect with each other at velocities $>c$; tachyon interaction at superluminal velocities is Unified or United action, as a function of U or Prescience which is an important prerequisite for Superluminal communication 108.

EXPERIMENTAL OBJECTIVITY 109.

Testing a hypothesis objectively means that if different experimenters "follow the same procedure" in different spacetime realities they either: a) obtain the same results, b) obtain similar results, c) obtain different results. With reference to (a), it is not possible for experimenters to "follow the same procedure" and obtain the "same results" as spacetime is continually changing. There exists a perceived dichotomy between the mind of the experimenter and the matter of the experiment. As long as these are perceived as separate systems the dichotomy will exist. Regarding this issue, J.S. Bell writes: "there exists an experiment and experimenter's brain...made of atoms, electrons, and nuclei, and so why should we hesitate to apply wave mechanics...at least if we were smart enough to do the calculations for such a complicated assembly of atoms? But beyond the brain...is the mind. Surely the mind is not material?... Surely it is here that we must expect some very different mathematics... classical terms and non-linear mathematics are in the mind... entertained by E.P. Wigner... and no one more eloquently than J.A. Wheeler has proposed that very existence of the material world may depend on the participation of the mind." 110. I believe the concept of hidden variables (of which De Broglie described as a possible cause of microphysical phenomena) may also be "hidden" from a metaphysical perspective if "hidden variables" are also concepts or imaginings which we have not yet received from omega consciousness and have not yet experienced or interpreted within alpha. NOTE: In non-resonant states, it is not possible for an Alpha scientist to be objective; it is only possible for Alpha to be Objective; only through linking with Omega can Alpha become Objective and Enlightened. It is our perception's cumulative experience that we can discover more about a phenomena; for example, we can describe light as a particle AND wave; if we have only one perspective from one point in spacetime we cannot see the whole picture; if we do experiments and make observations at different times then depending on the experimental conditions sometimes it exhibits characteristics of a wave and sometimes that of a particle. The particle-wave DualTY 111. of light and electro-dynamics and linear equations such as the Schrodinger wave equation and the Heisenberg Uncertainty principle are adequate for explaining phenomena at velocities at c ; understanding velocities above c are the challenges of the tachyon-aether. 112.

Not only does experimental apparatus operate in different spacetime realities making each experiment "unique" but I would also add that each experimenter is a unique quant-alpha-malgamation of energy matter distinct from every other alpha while also fundamentally similar; every Alpha experimenter is unique and always changing, reflecting and evolving through reflection through time and interaction with individual alpha memory and through U 113. One of my next experimental objectives is to widen the Klein-wormhole spacetime lens. This would be done by creating a collective group or bundles of microscopic "Klein-wormholes". This should improve the acoustic clarity of the interdimensional tachyon transceiver.

COROLLARY

I believe as we begin to understand the tachyon-aether strata, we will travel literally through the thoughts and dreams of the Cosmos. New technology has allowed us to "sense" further into the nature of the "Aether" in our efforts to try to understand the Cosmos; Science has evolved from the imagination and the imagination's relationship with technological developments. Imagine connecting the separate spacetime realities of someone listening to morse code telegraphy in 1902 or a radio receiver in the 1930's, and myself doing a cavity quantum electrodynamics experiment in 1997? Or imagine receiving communications directly from the 24th century or from a distant galaxy. I realized that no ordinary radio signal would remain coherent for such a passage through spacetime; a wave or resonant field from from my experiment in 1997 would dissipate within a rather small spacetime radius unless I was able to focus the information and keep it coherent for the long voyage between 1997 and 1902; so I thought of microdensing data onto an electron and then even down as far as the atomic level such that it could be carried by the atomic resonances and thus be in tune with the atom and the possibility of opening a Klein wormhole. I believed that if my intentions were good (to increase the beauty and harmony of the system of the twentieth century for example, and assuming that other scientists would eventually read my work and tried the same or similar ideas in the future) that their experiment, connected to omega consciousness facilitated by a tachyon supercomputer-transceiver, for example from the 24th century, could feed inspired ideas and correct harmonics back through my Klein wormhole opening it wide enough for the acoustics to be perfect and we could literally hear each other though separated by more than half a century or by centuries or millenia or from other galaxies for that matter. "One of the goals of unification is to show that all four fundamental forces "are manifestations of a single underlying principle..." 114. Note: I would suggest that if tachyons can not be observed directly that we should be looking for effects of tachyon interaction, through the co-creation of resonances of atoms photons, etc. at c , or by "coincidental" (not-so- coincidental) quantum resonances or effects through more experiments that could be observable by an alpha-theorist-experimenter existing in the ordinary yet not-so-mundane amazing world of communications-sent -communications -received $<c$, i.e. I receive a postcard from a friend with the image of "the Winged Victory" from the Louvre just after hearing a wonderful rendition of Beethoven's 5th Symphony <2 weeks ago on the radio; I didn't know that my friend was in Europe and I didn't know ahead of time the programming schedule of the radio broadcaster. Or I receive essential confirmation that my attempt to "send communication" to a distant point in space time was received

(for example I thought that if my theory was essentially correct, or in other words that if tachyons could carry the signal "back in time" just as well as "forward in time" coherently, that those to whom the signal was intended to reach, (for example, those who were working on experiments in electromagnetism at the turn of the century at Queen's University with whom I was attempting to communicate) actually received some or all of my communication via an intermediary higher or future consciousness translating my message into coherent wave packets through Hal1 and or Hal2 and or the latest designs for my invention of the tachyon transceiver; having the capability of greater intentionality than Hal1-Hal2 the purpose of which was to open up a Klein wormhole, send coherent wave packets through resonant atoms; (which could be continuous-discontinuous or in other words morse code bursts from a coherent laser beam within the boundaries of a Klein wormhole formed at c), or , by hearing my voice or the music I was playing while doing the sonic-vibration transference test from record through turntable through processor through local electromagnetic field through antenna through speakers through my ears to my brain to video-display-cathode-ray-vacuum tube through photons to my eyes to my brain through language to interpretation to translate through keyboard to compose to condense data to the microphysical scale; to compose to finetune to find a mathematical or algorithmic proof to test my hypotheses for consistency; to share with other scientists to get translations to refine the experiment to resonate through an atom such that the past is not just past that the future is now and the past is now such that if we believe we can make a difference we can make a difference for the better; to have faith; to persevere for healing; for harmony; for beauty; for love - and to find that WE ARE ALSO PART OF "the infinite causal sequence"; and that we are not alone and that each one of us is a universe within the Universe; confirmation of receipt of a tachyon transmission might come from any form of communication at velocities $>c$, $@c$, or $<c$.

SUMMARY

This author believes that coherent information can be sent at velocities $>c$, or "instantaneously" by the methods described in this paper via tachyons which could affect wave-packet information such as a pre-existing radio signal which would be Changed, thus giving us the ability to change history and the future through the Present; if we think we can change it for the better, therefore we can... I have been attempting to shine some light by contributing my thoughts, interpretation and understanding of the 5th dimension and the ability of and facilitation of superluminal communication and hope I have contributed to our understanding of Unification of the fundamental forces; as Einstein was attempting to create a Unified Field Theory I feel it might be appropriate to quote him here: "You are right dear skeptic. Experience alone can decide on truth." 115.

REFERENCES

- c. The Fundamental Vibration of the Universe; To this author, the etymology of the use of the symbol "c" to denote the velocity of light is no longer a mystery... What is the etymology of the use of the letter "c" to represent the velociTY of light? This author believes the abbreviation "c" should be thought of as an Aspect of "C" (from the first letter in Christ, Jesus), "Who was and Is the Light of the World and the Lord of all Space and Time and Who is a Lamp unto our feet and a Beacon to our Soul and Leads us through all True Scientific Endeavour." I understand "The Ascension" to be the literal Metaphysical-Physical Unification of the Universe at c, and the Presence of His Spirit with us always at c.
1. The word tachyon comes from the Greek root "tachys" which means swift; G. Feinberg, "Possibility of Faster-Than-Light Particles"; Physical Review, 25 July 1967 Vol. 159, Number 5, p1090.
 2. G.N. Cantor, "The Theological Significance of Ethers" in "Conceptions of Ether", ed. G.N Cantor & Hodge, History & Philosophy of Science, Leeds, 1981.
 3. *ibid.*,
 4. J.L. Heilbron, "The Electrical Field before Faraday", in "Conceptions of Ether", ed. G.N Cantor & Hodge, History & Philosophy of Science, Leeds, 1981.
 5. Daniel M. Siegel, "Thomson, Maxwell, and the universal ether in Victorian physics" refers to Knudsen, 1972:200, in "Conceptions of Ether", p239, ed. Cantor & Hodge, History & Philosophy of Science, Leeds, 1981.
 6. *ibid.* p254; Siegel refers to Maxwell's "On physical lines of force".
 7. Note: When thinking about "particles" in abstracto I tend to think of particles as "one dimensional points"; when I think of them in reality I think of them moving in "more than one dimension", especially when the context is in reference to light or electromagnetic radiation and communication at c, I tend to think of them as wave-packets of information.
 8. Olexa-Myron Bilaniuk and E.C. George Sudarshan, "Particles Beyond the Light Barrier"; Physics Today, May 1969, p.49.
 9. H.A. Lorentz, "The Theory of Electrons: lectures delivered at Columbia University, N.Y. April 1906", B.G. Teubner, Leipzig, 1909.
 10. C.R. Davy, The Theory of Philharmonics, 1996, p4.
 11. A. Einstein, "On The Electrodynamics of Moving Bodies", from "Zur Elektrodynamik bewegter Korper," Annalen der Physik, 17, 1905, in The Principle of Relativity: A Collection of Original Memoirs on the Special and General Theory of Relativity by H.A. Lorentz, A. Einstein, H. Minkowski and H. Weyl with notes by A. Sommerfeld, translated by W. Perrett and G.B. Jeffery; Methuen & Co. Ltd., p38.
 12. J.S. Bell, "Speakable and Unsayable in Quantum Mechanics; Cambridge University Press, p.172 and p.159.
 13. Olexa-Myron Bilaniuk and E.C. George Sudarshan, "Particles Beyond the Light Barrier"; Physics Today, May 1969, p50.
 14. *ibid.* p50.
 15. M.E. Arons, and E.C.G. Sudarshan, "Lorentz Invariance, Local Field Theory, and Faster-than-Light Particles", Physical Review Vol 173, Number 5, 25 Sept, 1968, p1623.
 16. Michael N. Kreisler, "Are There Faster-than-Light-Particles" American Scientist, March-April 1973 Vol 61, p207; (Kreisler refers to Parker in Phys. Rev. 188:2287 and A. Einstein, Annalen der Physik 17: sec 10, 1905.)
 17. C.R. Davy, "Theory of Philharmonics: Addenda" (p28).
 18. *ibid.*, p11 and p21.

19. *ibid.*, The Theory of Philharmonics can be thought of as a STRING theory: One of my favo(u)rite childhood books had the rather unostentatious titles "My Big Ball of String" which was a rather marvellous encouragement to a youngster bedridden with the flu attempting to master chaos (see reference 116. as an introduction to chaos theory), that one could do virtually anything with that big ball of string if: 1) one imagines, 2) one connects the worlds of reality; of cause and effect via "the string" to the worlds of magic, science and possibiLITY. Yes - - - + (the three - symbols are nomenclature for the three spatial dimensions and the + sign designates the dimension of time); We only see the section of the string to the upper visible limit of the light spectrum (and just beyond that by technological expansion of our umwelt; i.e. cosmic ray detectors) - just because we cannot see the rest of the string does not mean it doesn't exist, rather, it is just moving so quickly that we can not see it.

20. *ibid.*, p11,28.

21. "Matter-antimatter asymmetry in the early Universe and violation of time reversal symmetry", "...nuclear Beta-decay does not respect left-right symmetry. The prototype experiment was suggested by Lee and Yang in 1956 and performed by Wu and collaborators. In essence the decay is neutron decay (into proton, electron and anti-electron neutrino)...the strongest forces in nature, the strong nuclear force and the electromagnetic force, do respect parity; it is only the weak interactions that do not...all the laws of mechanics and electromagnetism are invariant under time reversal... Contemporary Physics, 1994, Vol. 35, number 3, p151-163.

22. David Bohm, "A Suggested Interpretation of the Quantum Theory in Terms of "Hidden" Variables.I., Physical Review, Vol 85 Number 2 January 15, 1952, p166; David Bohm refers to: Einstein, Podolsky, Rosen, Phys. Review 47, 777 (1933); D. Bohm, Quantum Theory (Prentice-Hall, Inc., New York, 1951), see p611.; Neils Bohr, Phys. Rev. 48, 696 (1935); W. Furry, Phys. Rev. 49, 393, 476 (1936); Paul Arthur Schilp, editor, Albert Einstein, Philosopher-Scientist (Library of Living Philosophers, Evanston, Illinois, 1949. This book contains a thorough summary of the entire controversy.

23. Catherine Asaro, "Complex speeds and special relativity", American Journal of Physics, 64 (4), April 1996, p421.

24. David Bohm, "A Suggested Interpretation of the Quantum Theory in Terms of "Hidden" Variables.I., Physical Review, Vol 85 Number 2 January 15, 1952, p168,171.

25. Eugene P. Wigner, "On the Time-Energy Uncertainty Relation", in "Aspects of Quantum Theory", ed. by Abdus Salam and E.P. Wigner, Cambridge University Press, 1972., p237.

26. Leonard Parker, "Faster-Than-Light Inertial Frames and Tachyons"; Physical Review, Volume 188, Number 5, 25 December 1969. p2287.

27. Blas Cabera and W. Peter Trower, "Magnetic Monopoles: Evidence Since the Dirac Conjecture", in "Dirac's Aether in Relativistic Quantum Mechanics", in "Quantum Space and Time, the Quest Continues; studies and essays in honour of Louis de Broglie, Paul Dirac, and Eugene Wigner", ed. by Asim O. Barut, Alwyn van der Merwe and Jean Paul Vigiér, Cambridge University press, 1984.

28. B.A. Huberman, "Energy of a Tachyon in a magnetic Field", Physics Letters, 36B, 1971, p573.

29. J.S. Bell, "Speakable and Unspeakable in Quantum Mechanics"; Cambridge University Press, p52.

30. Bert Schroer, "Quantization of $m^2 < 0$ Field Equations", Physical Review D, Volume 3, Number 8, 15 April, 1971, p1768.

31. G. Ecker, "Quantum Field Theory with Space-Like Momentum Spectrum", Annals of Physics: 58, p320. (1970).

32. A. Peres, "Gravitational Field of a Tachyon", Physics Letters, Vol. 31A number 7, Apr. 6, 1970.

33. R.G. Root and J.S. Trefil, "An Amusing Paradox Involving Tachyons" Lettere Al Nuovo Cimento Vol III, N. 13, 28 Marzo 1970, p414.

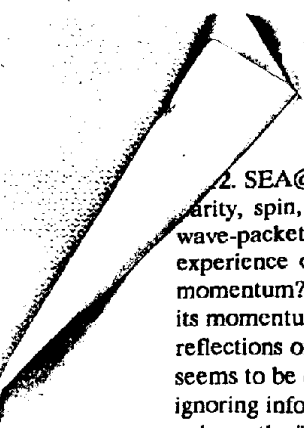
34. Tachyons might be characteristically similar to a Dirac monopole, acting as a united "monopole", the united Aspect of spacetime; a metaphor would be "acting as interconnected coils from "Rip Van Winkle's" coiled mattress; a vibration at any point of spacetime would send a vibration which could be received by any other resonant atom or photon at c , at any other point in spacetime. Perhaps connecting a derivation of Dirac's equations for monopoles to my equation for the energy equivalency of a quanta of spacetime energy or "ty" would assist in cementing or negating this idea.

35. Danburg et al, Phys. Rev. D, Vol. 4, No. 1, p56., refers to O.M.P. Bilaniuk, V.K. Deshpande, and E.C.G. Sudarshan, Am. J. Phys. 30, 718 (1962) H. Schmidt, Z. Physik 151, 365 (1958); 151, 408 (1958); S. Tanaka, Progr. Theoret. Phys. (Kyoto) 24, 171 (1960) Ya. P. Terletskii, Dokl. Akad. Nauk SSSR 133, 329 (1960) [Soviet Phys. Doklady 5, 782 (1960)] and G. Feinberg, Phys. Rev. 159, 1089 (1967).
36. Roger G. Newton, "Causality Effects of Particles That Travel Faster Than Light", Physical Review, Vol 162, Number 5, 25 Oct. 1967, p1274.
37. Gerald Feinberg refers to an argument by D. Bohm pointed out by Dr. P.B. Kantor in G. Feinberg, "Possibility of Faster-Than-Light Particles"; Physical Review, 25 July 1967 Vol. 159, Number 5, p1092.
38. Paul L. Csonka, "Advanced Effects in Particle Physics.I", Physical Review, Vol 180, Number 5, 25 April, 1969, p1267.
39. G.A. Benford, D.L. Book, and W.A. Newcomb, "The Tachyonic Antitelephone", Physical Review D, July 15, 1970, p263 & 265; the quote from p263 refers to R.C. Tolman, "The Theory of Relativity of Motion", University of California Press, Berkeley, 1917, p54-55.
40. Adel F. Antippa and Allen E. Everett, "Tachyons Without Causal Loops in One Dimension", Physical Review D, Volume 4, Number 8, 15 October 1971, p2199.
41. [refers to C.G. Kuper and S. G. Lipson: Nature, 223, 597 (1969); Y. Aharanov, A. Komar and L. Susskind: Phys. Rev., 182, 793 (1969)]
42. R.G. Root and J.S. Trefil, "An Amusing Paradox Involving Tachyons" Lettere Al Nuovo Cimento Vol III, N. 13, 28 Marzo 1970, p412.
43. David Deutsch & Michael Lockwood, "The Quantum Physics of Time Travel", Scientific American, March 1994, p68.
44. "The Theory of Philharmonics" p7.
45. G. Feinberg, "Possibility of Faster-Than-Light Particles"; Physical Review, 25 July 1967 Vol. 159, Number 5, p1103.
46. A.F. Antippa, "A One-Dimensional Causal Theory of Tachyons" Il Nuovo Cimento, 1 Agosto 1972, Vol. 10A N. 3. p398.
47. L.S. Schulman, "Tachyon Paradoxes", American Journal of Physics, Vol. 39, May 1971, p481.
48. Robert G. Cawley, "Classical Charged Tachyon Self-energy Problem", Phys. Review D, Volume 2, Number 2, July 15, 1970.
49. Paul L. Csonka, "Advanced Effects in Particle Physics I", Phys. Rev. Vol 180, No. 5, 25 April, 1969, p1272.
50. J.A. Parmentola and D.D. H. Yee, "Peculiar Properties of Tachyon Signals", Physical Review D Vol. 4 Number 6, 15 Sept 1971, p1912.
51. Michael N. Kreisler, "Are There Faster-than-Light-Particles" American Scientist, March-April 1973 Vol 61 p202.
52. (refers to Higher Level Language, "The Resonant and Harmonic Qualities of the Universe" page 2, and "The Theory of Philharmonics" page 5).
53. A.J. Schwarz, N.A. Doughty, "Kaluza-Klein unification and the Fierz-Pauli weak-field limit", American Journal of Physics, 60 (2), February 1992, p153 & 155. (In Kaluza-Klein unification the "radius of the 5th dimension is 3.784×10 to the exponent -34 m. where the Planck length 1.616×10 to the exponent -35 m.)
54. ibid. p153.

55. Herman Feshbach, *Physics Today*, "The road to four dimensions" Dec. 1986, p7; also, Viswanathan's paper "Dimensional Reduction and Harmonic Expansion of Coset Spaces", in "An Introduction to Kaluza-Klein Theories, Workshop on Kaluza-Klein theories, Chalk River/Deep River Ontario, 11-16 August 1983, edited by H.C. Lee, World Scientific, 1984, may be applicable.
56. Christopher F. Chyba, "Kaluza-Klein unified field theory and apparent four-dimensional space-time; *American Journal of Physics* 53 (9) September, 1985.
57. "The Theory of Philharmonics", p4.
58. A.J. Schwarz and N.A. Doughty, "Kaluza-Klein unification and the Fierz-Pauli weak-field limit", *American Journal of Physics*, 60 (2), February 1992, p151; the authors refer to O.B. Klein, "Quantentheorie und funfdimensionale Relativatstheorie", *Zeit fur Phys.* 37, 895-906 (1926). Two English translations are T. Muta, "Quantum theory and five dimensional theory of relativity" in "An Introduction to Kaluza-Klein Theories, Workshop on Kaluza-Klein theories, Chalk River/Deep River Ontario, 11-16 August 1983, edited by H.C. Lee, World Scientific, 1984, p 10-22, and C. Hoenselaers, "Quantum theory and five dimensional theory of relativity" and in V. De Sabbata and E. Scmutzer, "Unified Field Theories of More Than Four Dimensions Including Exact Solutions, World Scientific, Singapore, 1984, p434-446, and O.B. Klein, "The atomicity of electricity as a quantum theory law"; *Nature*, 118, 516 (1926).
59. Oskar Klein, "The Atomicity of Electricity as a Quantum Theory Law", *Nature*, October 9, 1926, p516.
60. John Horgan, refers to Francis Crick and Christof Koch in "Can Science Explain Consciousness?", *Scientific American*, July 1994, p88.
61. "The Theory of Philharmonics", p6.
62. John Horgan, "Colliders and the Search for Unity", *Scientific American*, February, 1994, p103.
63. M. Norton Wise, "German concepts of force, energy, and the electromagnetic ether: 1845-1880, in "Conceptions of Ether", ed. Cantor & Hodge, p288.
64. Sho Tanaka, "Theory of Matter with Super Light Velocity", *Progress of Theoretical Physics*, Vol. 24, No. 1, July, 1960, p172. NOTE: Perhaps Lie transformation groups could be used (in combination with the description of the "S-field" or "S-matrix" as "scaffolding") to describe interactions of the Yin-spacetime-tachyon-aether; perhaps my "stone-work" or algebraic representation of the energy equivalency of quanta of spacetime or "ty" could use some "mortar" which might assist in the discovery of a formal proof of my hypotheses. Translations of concepts between different languages i.e. physics and mathematics to other languages is helpful for understanding physical concepts.
65. R. Mignani & E. Recami, "Generalized Lorentz Transformations in Four Dimensions and Superluminal Objects" Vol. 14A, N. 1, 1 Marzo 1973, p171-172.
66. G. Feinberg, "Possibility of Faster-Than-Light Particles"; *Physical Review*, 25 July 1967 Vol. 159, No. 5, p1097.
67. M.E. Arons, and E.C.G. Sudarshan, "Lorentz Invariance, Local Field Theory, and Faster-than-Light Particles", *Physical Review* Vol 173, Number 5, 25 Sept, 1968, p1625.
68. G. Feinberg, "Possibility of Faster-Than-Light Particles"; *Physical Review*, 25 July 1967 Vol. 159, No. 5, p1100.
69. *The Theory of Philharmonics*, 1996, p22.
70. Adel F. Antippa and Allen E. Everett, "Tachyons Without Causal Loops in One Dimension", *Physical Review D*, Vol. 4, Number 8, 15 October 1971, p2198.
71. Olexa-Myron Bilaniuk and E.C. George Sudarshan, "Particles Beyond the Light Barrier"; *Physics Today*, May 1969, p46-47.
72. C.Davy, answering a question posed by Tom Zannias, summer, 1997, referring to *The Theory of Philharmonics*", p18.

73. Jerome S. Danburg, George R. Kalbfleisch, Samuel R. Borenstein, Richard C. Strand, and Vance VanderBurg, and J.W. Chapman and J. Lys, "Search for Ionizing Tachyon Pairs from 2.2-GeV/c K^-p Interactions", Physical Review D, Volume 4, Number 1, 1 July 1971.
74. L.S. Schulman, "Tachyon Paradoxes", American Journal of Physics, Vol. 39, May 1971, p483.
75. M. Gluck, "On the Existence of Tachyons", Il Nuovo Cimento, Vol. 1A, No.3, 1 Feb., 1971.
76. L.H. Ryder, "Matter-antimatter asymmetry in the early Universe and violation of time reversal symmetry", Contemporary Physics, 1994, Volume 35, number 3, p152.
77. Jerome S. Danburg, George R. Kalbfleisch, Samuel R. Borenstein, Richard C. Strand, and Vance VanderBurg, and J.W. Chapman and J. Lys, "Search for Ionizing Tachyon Pairs from 2.2-GeV/c K^-p Interactions", Physical Review D, Volume 4, Number 1, 1 July 1971, p55.
78. Torsten Alvager and Michael N. Kreisler, "Quest for Faster-Than-Light Particles", Physical Review, Volume 171, Number 5, 25 July 1968, p1358.
79. G. Feinberg, "Possibility of Faster-Than-Light Particles"; Physical Review, 25 July 1967 Vol. 159, Number 5, p1098.
80. *ibid.* p.1101.
81. *ibid.* p1099.
82. *ibid.* p1098.
83. Leonard Parker, "Faster-Than-Light Inertial Frames and Tachyons"; Physical Review, Volume 188, Number 5, 25 December 1969, p2292.
84. A.M. Gleeson and E.C.G. Sudarshan, "Physical Interpretation of Complex-Energy Negative-Metric Theories", Physical Review D, Volume 1 Number 2, 15 Jan 1970, p474.
85. J. Dhar and E.C.G. Sudarshan, "Quantum Field Theory of Interacting Tachyons", Physical Review, Volume 174, Number 5, 25 October, 1968, p1812.
86. *ibid.*, p1814.
87. R. Mignani & E. Recami, "Generalized Lorentz Transformations in Four Dimensions and Superluminal Objects" Vol. 14A, N. 1, 1 Marzo 1973, p177-178.
88. *ibid.* p182.
89. Michael N. Kreisler, "Are There Faster-than-Light-Particles" American Scientist, March-April 1973 Vol 61 p203.
90. Torsten Alvager and Michael N. Kreisler, "Quest for Faster-Than-Light Particles", Physical Review, Volume 171, Number 5, 25 July 1968, p1358, refers to G. Feinberg. Phys. Rev. 159, 1089 (1967), refers to A. Sommerfeld, Koninkl. Ned. Akad. Wetenschap. Proc. 8, 346 (1904); also I. Frank and I Tamm, Compt. Rend. Acad. Sci. URSS 14, 109 (1937).
91. O.M.P. Bilaniuk, V.K. Deshpande, and E.C.G. Sudarshan, "Meta Relativity", American Journal of Physics, Vol. 30, 1962. refers to A. Sommerfeld, K. Akad. Wet. Amsterdam. Proc.8, 346 (1904) (translated from Verslag v.d. gewone verkadering d. Wis-en Natuurkundige Afd., November 26, 1904. DI. XIII); American Journal of Physics, 30, 1962, p718.
92. G. Feinberg, "Possibility of Faster-Than-Light Particles"; Physical Review, 25 July 1967 Vol. 159, Number 5, p1100
 "...Cerenkov radiation can be emitted in free space by a charged particle that moves faster than light... (This seems to have been first recognized by A. Sommerfeld, K. Akad. Wet. Amsterdam Proc. 8, 346 (1904). See also G.A. Schott, Electromagnetic Radiation (Cambridge University Press, Cambridge, England, 1912)."
93. H.K. Wimmel, "Tachyon Mechanics and Classical Tunnel Effect", Lett. Nuovo Cimento, 2, p363, 1971.
94. M.N. Kreisler and T. Alvager, Phys. Rev. 171:1357 (1968); M.B. Davis, M.N. Kreisler, and T. Alvager, Phys. Rev. 183:1132 (1969); C. Baltay, G. Feinberg, N Yeh, and R. Linsker, Phys. Rev. D 1:759 (1970); J.S. Danburg, G.R. Kalbfleisch, S.R. Borenstein, R.C. Strand, V Vanderburg, J.W. Chapman, and J. Lys, Phys. Rev. D 4:53 (1971); P.V. Ramana Murthy, "Search for Tachyons in the Cosmic Radiation, Lett. Nuovo Cimento 1:908 (1971); and L. Parker, Phys. Rev. 188:2287 (1969).

95. Torsten Alvager and Michael N. Kreisler, "Quest for Faster-Than-Light Particles", *Physical Review*, Volume 171, Number 5, 25 July 1968, p1360-1361.
96. C. Baltay, G. Feinberg, and N. Yeh, "Search for Faster-than-Light Particles", *Physical Review D*, Vol. 1, Number 1, February 1st, 1970, p759.
97. S. Naranan, "A Generalized Lorentz Transformation and Its Implications for Observability of Tachyons", *Lettre Al Nuovo Cimmento*, Vol. 3, N 15, 8 April, 1972, p623.
98. Experimental Test of Bell's Inequalities Using Time-Varying Analyzers; Alain Aspect, Jean Dalibard, and Gerard Roger, *Physical Review Letters*, Volume 49, Number 25, 20 December, 1982, p1804.
99. Raymond Y. Chiao, Paul G. Kwiat and Aephrim M. Steinberg, "Faster than Light?"; *Sci. American*, August 1993.
100. C.Davy, Addenda to Theory, letter to Theresa; (I was referring to "spacetime" quantum tunneling in addenda).
101. Cuffaro, Petroni and Vigier, "Dirac's Aether in Relativistic Quantum Mechanics", in "Quantum Space and Time, the Quest Continues: Studies and essays in Honour of Louis deBroglie, Paul Dirac and Eugene Wigner" ed. by Asim O. Barut, Alwyn van der Merwe and Jean Paul Vigier, p534-535.
102. G. Feinberg, "Possibility of Faster-Than-Light Particles"; *Physical Review*, 25 July 1967 Vol. 159, Number 5, p1103.
103. *The Theory of Philharmonics*, 1996, p.3.
104. *ibid.*, p9.
105. Serge Haroche & Jean-Michel Raimond, "Cavity Quantum Electrodynamics", *Scientific American*, April 1993, p56.
106. Arthur D. Yaghjian, "Maxwellian and cavity electromagnetic fields within continuous sources", *American Journal of Physics*, 53 (9), September 1985, p859.
107. Michael N. Kreisler, "Are There Faster-than-Light-Particles" *American Scientist*, March-April 1973 Vol 61 p204.
108. Tachyons could be considered as INTELLIGENT, CONSCIOUSLY IN TUNE FREE STRINGS!!! of varying lengths connecting and reconnecting in superluminal UniTY and Harmony; The Tachyon-aether could be the "Divine Wind" or the "Breath of God" or the MESSENGER OF THE LIVING THOUGHTS OF THE ALMIGHTY'S UNIVERSE!!!!"
109. We might think that the best we can hope for regarding objectiviTY in scientific research is to obtain similar results as those of our colleagues or to obtain different results and to recreate new hypotheses which fit better with observables. The usefulness of scientific investigation thus has value as individuals compile the results of their theoretical constructions and experimental investigations and share their results with other scientists. The first step in making a positive contribution to the human condition is to believe that we can.
110. J.S. Bell, "Speakable and Unspeakable in Quantum Mechanics; Cambridge University Press, p191.
111. Berthold-Georg Englert, Marlan O. Scully & Herbert Walther, "The Duality in Matter and Light", *Scientific American*, December, 1994.



12. SEA@c... At the speed of light, c , many interesting effects can occur regarding particle-wave interaction... charge, parity, spin, strangeness, angular momentum, and gravitational effects may become reversed depending on how the wave-packets have been characterized and by the momentum which they have been given. These particle-waves can experience co-incident, re-inforcing, interference, dispersion, dissipation, scattering, etc. effects. What gives Light its momentum? I have written (in letters to Rudolph Kriegler, Nortel Research and Theresa) that c or Omega gives Light its momentum. I also believe that Alpha can give light its momentum. The "past" is under the waves of the "c" looking at reflections of ourselves much like fish might see themselves in the mirrored surface of the sea above them...the "present" seems to be our pre-occupation reflecting and refracting radiowaves and light around; this is good - however, we might be ignoring information (from tachyons) that has graced us from the higher artesian spring of the future. I described how to enlarge the "fish-eye lens at the surface of the sea" (or by creating a resonant wavepacket in a Klein-wormhole...at velocity c ... by microdensing data and changing the angular momentum of an electron etc.) in my experiment, theory, previous communications and in this paper.

113. Any scientific description of reality (including history), must be incomplete (unless one could connect to the Mind of God). As we experience both differentiation and integration of physical and metaphysical Reality our minds oscillate between alpha states of awareness-meditation-concentration. When tuned to our natural resonance and to the Fundamentals of the Universe we experience more Unity.

114. Dietrick E. Thomsen, "Kaluza-Klein: The Koenigsberg Connection", Science News, Vol. 126, July 7, 1984.

115. Abraham Pais, "Subtle is the Lord...The Science and the Life of Albert Einstein", Oxford University Press, 1982, p350, refers to Sci. Am., April 1950, p17.

116. "Mastering Chaos", William L. Ditto & Louis M. Pecora, Scientific American, August 1993.

117. The Unification of physics and Metaphysics takes the form of some questions which lead to other questions and hopefully some answers: Does the image of the Starchild from Arthur C. Clarke's "2001: a Space Odyssey" come to mind? From a metaphysical-physical perspective do we not mean that when a child is born a whole new cosmos is born? For every alpha consciousness there is a whole new universe? Wouldn't this also support the possibility of an infinitely expanding Universe? What do I mean by the JESUS link in the Theory of Philharmonics? Wouldn't it be conceivable theoretically, and possible experimentally to create resonant systems as I have postulated through spacetime singularities or Klein wormholes and communicate superluminally through vast distances of spacetime and send gracious information in coherent wavepackets to prevent catastrophes and disharmonies? As Scotty said when he was communicating with an engineer from the "past" (referring to the invention of "transparent aluminum") from Star Trek IV ... "How do we know that he didn't invent it?" (with a little shared inspiration from the future)... Why would we assume that we can't communicate from 1997, through my invention of tachyon transceivers with people who used radiowaves to communicate with each other and who lived earlier in this same century? or communicate with people from the 24th century or consciousness in a distant galaxy? Why can't we send coherent wave packets through Klein wormholes, with velocities $>c$, to interface with other electromagnetic radiation at velocity c , certainly a fundamental vibration of the universe and perhaps even the "golden mean" vibration of the universe? Was the pinnacle of human achievement in 1969 when we put a man on the moon, or is it right now when human minds are thinking? What is Right Now? Where is Right Now? Would unification not also mean unification of the whole of the cosmos, of spacetime, matter-energy, electromagnetic, strong and weak nuclear forces, gravitation and consciousness; whatever we conceive consciousness to be? Do we give up the Possibility for the existence of the tachyon entity; can we really understand anything? Is there a chance that we might use tachyons in such a way that our inter-relationship with the phenomena could help us to have a reality (history-future) where millions of lives could be saved? To do anything we must first believe it is possible. To get up from a kitchen chair or to imagine the chair you are sitting in to perform an experiment is like the helm of the Starship Enterprise takes first imagination and just a little suspension of disbelief. My fundamental belief that drives me every day is the thought "that with God All Good Things Are Possible". To me, God is first and foremost, Love. This is my personal philosophy and I think it is worthwhile and just as valid to share personal philosophies as it is to discuss abstract philosophies and scientific theories and insights or write a journal article. I believe that most scientists believe as I do that it is mind-over-matter, and that if we do not see results, then we go back to the imagination and the drawing board and try again. God gives us the strength to try again. I believe that if we have Faith and persevere in this Endeavor, we will see effects of tachyon interaction and how history and the future can be Chang-ed in less than the twinkling of an eye. A co-incidental metaphysical note is that the word for "hope" in French begins with the letters "E.S.P.erance". Metaphysics is no longer separate from physics; phenomena such as dreaming, telepathy, and E.S.P. are now no longer unexplainable or foreign to the language of physics.

1 pole at one end of the horseshoe shaped magnet and the subluminal pole at the other end of the magnet AND we think of the horseshoe magnet as tubular instead of being solid AND We imagine the geometry of the tubular magnet as a TRANSFORMER and we imagine the tubular geometry of the electromagnetic spacetime fields as a Davy-Klein-Lobatchevskian-wormhole-spacetime-singularity and We imagine this transformed if necessary and possible by Boe transformations to describe the GEOMETRIC-FIELD POTENTIALS of the Boe-Davy-Klein-Lobatchevskian-wormhole-spacetime-singularity region by using S-matrix, Lie Algebras or Group Theory or other mathematical expressions ideal to explain the Boe-Davy-Klein-Lobatchevskian-wormhole-spacetime-singularity region.

1.

IF we look at Dirac's statement "it is possible for a signal to be transmitted faster than light through the interior of an ELECTRON (my capitalization). The finite size of the electron now appears in a new sense, the interior of the electron being a region of [failure] not to the field equations of electromagnetic theory, but of some of the elementary properties of spacetime. .." I saw and still see a possibility here to further describe a possible connection to the space time superluminal frame of reference here via my hypothesis of Davy-Klein-Lobatchevskian-wormhole-spacetime-singularities IF We focus on conforming the ELECTRON to the tractrix described by the Lobatchevskian geometry which I have previously suggested that we use to describe the Davy-Klein-wormhole-spacetime-singularity. I see that IF we replace the word [failure] in this context with the word [contraction] and more specifically the [Lorentz equation of the relativistic contraction of the electron] which is $[(1 - v \times v / c \times c) \text{ to the exponent } 1/2]$ We can drill a beautiful well to the artesian springs of the superluminal frame of reference from the subluminal frame of reference, or from life under the "c - sea" or at "c" to the superluminal tachyon "aether".

Could it be possible that an ELECTRON itself could be one of the Dirac monopoles we have

been looking for? I believe it could be so easy! The electron would represent the subluminal electrostatic pole of the charge differential between the electrostatic and electromagnetic potential of a medium (Maxwell's aether). Recami and Mignani suggested also that a magnetic pole "behaves as electric when slower...than light" 2. The subluminal monopole would thereby carry the naturally occurring fundamental charge of the electron. I agree with Recami and Mignani who also suggest a symmetry to the Superluminal frame of reference such that the Superluminal charge can be thought of as "magnetic" when faster than light.

If We accelerate or "spin" an electron to the threshold energy of the Coulomb barrier of ionization and beyond IN VACUUM by supplying enough energy to a gamma-ray to lift an electron from a negative energy state to a positive energy state (i.e. when the energy of the gamma-ray is $> 2 m c^2$) and transform the electron by creating fields inside the vacuum cavity conforming the electron to the configuration space of the Lorentz-transformation described algebraically by $[(1 - v^2 / c^2)^{-1/2}]$, and create a superluminal-subluminal transformer from this configuration because this relativistic electron is conformal to the Davy-Klein-Boe-Lobatchevskian-wormhole-spacetime-tractrix-singularity geometry. (After years of thinking about this, this could be it! Brian, can You find a proof for this?) When the superluminal-subluminal transformer is created, tachyons might change the polarity of the positrons in the tractrix region and at the highest frequencies of light we might see positron-electron pair production from the 5-d superluminal vacuum and positrons becoming photons and then photons becoming electrons as the particles gain mass as they decelerate from light velocities. Possibly the positron becomes visible because the superluminal spacetime quanta tachyon energy interchanges the charge between positron and electron polarities because of a charge differential existing between the superluminal and the subluminal frame of reference, a change of charge being transferred from the superluminal to the subluminal

l frame of reference in the vacuum cavity.

If wavepackets of information could be pumped into the vacuum cavity by the previously mentioned gamma source or by lasers tuned to atomic dimensions (which I described in the last diagram I sent to Brian and Theresa) and we create free electrons by ionization in vacuum (above the Coulomb threshold barrier of ionization the electrons become free electrons and begin to behave more like photons and would naturally behave somewhat chaotically until they are given specific momentum to intersect with a beam of decelerated light hopefully creating a resonance in the DeBroglie wave by constructive interference. I am hoping we can create a resonance which would facilitate pair production for polarity transfer which would put the transceiver in transmitting mode.

To put the transceiver in receiving mode I believe we would also need to tune the transceiver cavity vacuum to the frequency where the photon energy = the free electron energy. Then the electrons could absorb the momentum of the photons, the photons occupying a charge-free neutral LEPTON state so that they "float freely" between tachyon, photon, positron and electron states or in other words they are free to absorb or emit energies at velocities [$> c$, $= c$, $< c$] ion velocities. So a charge free lepton can be seen as a photon when visible and imagined as a tachyon when invisible. In other words when a lepton is visible, a lepton is a photon. When a lepton is invisible the lepton is a tachyon. Also, a visible or invisible neutral lepton could absorb or emit a positron charge or an electron charge which explains how tachyons become photons and how positrons become electrons. So we want to tune our gamma source or coherent laser beams and focus them such that a coherent wave-packet becomes a resonant DeBroglie electron wave which we accelerate through a Lorentz transformation by creating optimal field conditions in vacuum such that lepton metamorphosis is prevalent especially in the Boe-Davy-Klein-Lobatchevsky-wormhole-spacetime

singularity geometric region
in the vacuum cavity.

If it MAY be useful to reduce the speed of light in cavity vacuum to optimize lepton interaction and Boe-Davy-Klein-Lobatchevskian-Tractrix-wormhole-spacetime-singularity conditions and if Brian and Aephraim and Theresa believes it is useful such that the Chris, Brian, Theresa and Aephraim Guild can get paid as we develop phase II of the tachyon transceiver project, We might seek assistance of Dr. Chiao at Berkeley, and Jon Marangos, L.V. Hau et al. 3. who might possibly help us decelerate the velocity of light in vacuum which might be necessary to optimize resonant-DeBroglie-wave-lepton-Boe-Davy-Klein-Lobatchevsky-wormhole-spacetime singularity geometric conditions.

Once We assemble and test the apparatus of the tachyon transceiver, the possibility Also exists for the Transformation of history through communication between two or more Alpha Tachyon Transceiver sources through the Superluminal Tachyon Aether! (I have given a sketch of a proposed experiment to test our technology once we have assembled the apparatus to our satisfaction, to N.R.C. in Ottawa) which I enclose with this document). Also enclosed herein are some algebraic equations which You might find helpful. I hope they are consistently correct but if they don't meet with your satisfaction, please be free to transform them into something elegant! Sincerely and with much much brotherly love, I toast to the "Guild" !

1. Wheeler and Feynman, "Interaction with the Absorber as the Mechanism of Radiation";
Reviews of Modern Physics, Vol. 17, numbers 2 & 3, April-July 1945; page 178.

2. E. Recami and R. Mignani; Magnetic Monopoles and Tachyons in Special Relativity; Physics Letters, vol 62B, 10th May 1976, page 42.

3. Jon Marangos; Slow light in cool atoms; Nature, vol. 397, 18 February, 1999;
refers to Hau, L.V., Harris, S.E., Dutton, Z., and Behroozi, C.H.

; Nature 397, 594-598 (1999).

So I don't lose Your attention I continue with the task at hand.

If we think of the velocity
of the speed of the speed of light

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April 2/2000. Pg. 1 of 6

Hi Simon!

I'm enclosing this letter to You in a Magic envelope which I received from the Editors of the Scientific Journals Physical Review and Physical Review Letters, (the Magic envelope I received in December of 1996). During December of 1995 and January of 1996 I was doing an experiment because I was interested in trying to explain a possible connection between Metaphysics and Physics and as I wanted to describe the Physics of a transfer of a resonance between the Superluminal frame of reference where velocities are $> c$, the velocity of light, and the subluminal frame of reference where velocities are $< c$, I created an equation describing this possible energy transfer which is described as "ty" in the copy of my thesis which I gave you. There was a famous Baseball player who was an amazing hitter by the name of Ty Cobb; his batting average was .367 which is better than just OK! So if you want to play catch, here is a golden opportunity to do better than Ty! I completed my thesis in Nov. of 1997 whereby I connected my new work to the work of other Physicists which was a lot of work. Recently I have just completed work describing how the energy transfer is made possible between the Superluminal frame of reference and the subluminal frame of reference which I mailed to my colleagues Dr. Brian Boe, professor of Mathematics at the University of Georgia and

(1) an electron which is conformed to a specific Kobayashi-Maskawa geometry
 and conformed by a Lorentz transformation
 to create this specific configuration space in vacuum.

his wife Theresa Brunasso who is a practising electrical engineer and to Dr. Ephraim Steinberg at the University of Toronto's Physics Dept. on Friday ~~the~~ Apr. 1st, 2000, so together we form a "quartet" Guild so we can construct my invention of the tachyon transceiver.

This letter to you is a golden opportunity for a Knight to join the Guild and to "play catch" (I refer to the wonderful gift you gave me "Field of Dreams" for inspiration because you can accomplish what you desire and if we're going to "play catch and share the same dream" I'm throwing the ball to you because you have to catch this pitch and you have to throw it back if we're going to play "catch catch and share the same dream"; after you catch it you can be hitter or first baseman or relief pitcher! If you want to you can't be starting pitcher because I started you with Mom! Once you decide to pitch you'll be awesome!

In my new work I describe how the resonance is transferred between the superluminal frame of reference and the subluminal and I created two new hypotheses and therefore two new discoveries: the resonance is transferred through lepton metamorphosis and through a ~~relativistic electron~~ relativistically contracted electron singularity. (1)

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a discovery cannot be described and so

Without a hypothesis¹ an invention cannot be realized. Therefore the hypothesis is the invention. When the hypothesis is verified by experiments my dream and invention of the tachyon transceiver will be realized! So this is a very exciting time for me! What could be accomplished by you (if you're interested) is to calculate how much tachyon energy can pass through from the Superluminal frame of reference to the subluminal frame of reference per unit time, (where time is measured in seconds in the subluminal frame of reference) which we might also call the Young-Davy crossing energy relation (there was also a famous Scientist by the name of Young who performed what is known as the "double-slit" experiment which described the dual particle-wave nature of light). In my recent work (which I sent to the other members of the quartet) I have created new equations which could help you solve this problem. I will give you a hint². My equations describe the existence of a Superluminal Soliton monopole and also (1)⁺ how the resonance is transferred through the space time singularity is (3.) through Lepton metamorphosis, so actually there are 3 hypotheses in my most recent work two of which, (the relationally contracted electron forming the ^{SP2} etime singularity and the Lepton metamorphosis

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hypotheses are new and also integral within the specifications for the design of the teletype transmitter.

Now, because there are two poles to every magnet, you could attempt to discover what the other pole is which I have stated is the electron! So the other magnetic pole is actually an electron which carries an electric charge which is what we see and use every day! I think you're quite capable of solving any problem and so if you decide to solve the crossing energy relation, when you solve it, the scientific community would describe your equations as the Young-Davy energy relations!

I ask you to please borrow the copy of Fried of Dreams from me if you want to be inspired; remember it is DOCTOR GRAHAM in that story who is the biggest star! You and your sister are already naturally my brightest stars so far! So if you want to play catch with me son, you have to throw the ball back and because you are more naturally gifted than I because your mother gifted me with you, please don't throw it so it breaks a window and don't throw it back so high that I can't understand you! We can all be star players when we use God's talents that God gave us to help one another achieve great and wonderful things!

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OF
6

Now my Dream may not be your Dream but You are already in My Dream because Love Created You and I think you're going to play in the Big League because you are my Son because you're already in the Big League with me because you are my Son (Naturally). You're also Supernatural with me because I'd support any wonderful decisions you decide to make! So if you want to study business or banking or what-have-you, then that is great also, just remember that it is DOCTOR Graham who was the real star in the Field of Dreams.

So perhaps Your Grandmother can help use your talents to help Dr. Steinberg register my patent for my invention of the factory transceiver. You should talk to your Grandmother about these financial and legal agreements because she is a great short-stop and knows how to deal with these situations so that I and you can receive some good ROYALTY monies. That would also be a big help and give us a terrific game of catch and so you and I can be very wealthy. I have worked on my transceiver project for a very long time and I want to

get this letter to your Grandmother as soon as possible!

Also, I've got a New Official League baseball to give you with your name on it. I'll send it to you at a superluminal pg-6
 superluminal velocity because together when of 6
 I pitch it to you because you're my son, I know you'll 6
 hit it right out of the galaxy.

be paid very well for my efforts. I have asked Brian and Theresa to assist with registering the patent in the U.S.A. and you and Dr. Sternberg to assist with the registration and development of my invention in Canada. So if you want to, this is a Golden opportunity to play catch because I Love you and your Mother and Grandmother also! Also, I think you should keep mum about it with Mom because I don't want her to get into a "tither" and that way, maybe I'll ask her for a dance someday!

She'll find out someday from Nana. I'm what's happening, I'm sure!

This invitation to be a partner in the development of my invention and to play physics catch is valid and good provided we can agree that I and you KEEP an amount and share an amount that is agreeable to myself and with myself and that is also agreeable to you and with you.

Also KEEP this letter and the Magical envelope it arrived in because you are very sentimental to my heart and with my heart and because also you may decide to be a Doctor someday!

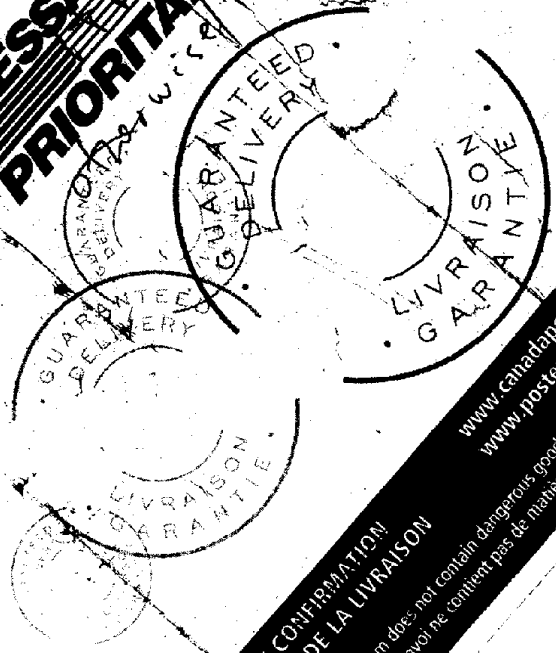
Love, Dad,  CHRISTOPHER R. DAVY

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From: CHRIS DAYVY
 Address: 41-168 KING ST E.
 City/Prov./Postal Code: K1L 3A3
 Destination: SIMON DAYVY
 421 SMITH DR.
 Georgetown, Ontario
 L7G-5K7

Date: 2000-05-24
 Telephone no.:
 N° de téléphone:



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Def 2

Addendum to my letter to Simon Davy, of Apr 3, 2000. Apr. 5, 2000

Dear Simon,

Please use the following phrase when you register my patent(s) for the tachyon transceiver; the same agreements contained within my letter to you of Monday Apr 3, 2000 apply to the following information in this letter.

" The Davy tachyon transceiver-transformer transforms superluminal tachyon spacetime quanta energy by means of magnetic induction between a superluminal soliton Dirac monopole and a subluminal electron pole through a Davy-Klein-Lobatchevskian-wormhole-spacetime singularity (through a Boe transformation) by conforming a relativistically contracted electron through a Lorentz transformation to Davy-Klein-Lobatchevskian-wormhole-spacetime singularity conditions in vacuum connecting a resonance instantaneously without relativistic time-delay by means of electron-free electron-lepton-photon-lepton-positron-lepton-tachyon metamorphosis in vacuum, which connects

Do these soon as possible
or if you can register 1st
But get FIRST Patent First!
two simultaneous OK

1. omit for my ^{1st} patent and then check with 2. because time is of the essence 3.
2. * ~~then~~; check with Dr. Boe at the University of GA Mathematics Dept. if He wants to have this designation here; 2nd patent.
3. we don't want to lose priority standing in registration process
4. Register another patent with Dr. Sternberg including above info. as integral to design.

get wording exactly same
on paperwork

(cont'd)

resonance instantaneously to another
cavity quantum electrodynamic vacuum
tuned to the pre-stated vacuum cavity
conditions."

I give Simon Davy permission here to act as Chris Davy's
patent agent! I love you Simon, keep it under
your hat so it can go into our pockets.
Don't talk to your girlfriend about it after
we're registered (and therefore rich & famous).

Act with great speed, may the
force be with you
Drive carefully etc.

Love Dad.

Do it NOW!

or we might not be ^{as} rich and
famous.

CLAIMS

Invention: The Tachyon Transceiver
Inventor: Christopher Robb Davy

The Tachyon Transceiver(s) can send or receive a resonance from one point in spacetime to another point in spacetime instantaneously without a relativistic time-delay.

please see my physical and technical descriptions in my thesis, drawings, thesis addendum, and synoptic description within the application explaining the physical and technical methodology.

Tachyon "electron" μ real

$$E = \frac{\mu c^2}{\sqrt{v^2/c^2 - 1}}$$

$$X_h = \frac{h\nu}{(B+\gamma)c^2} = \frac{e_{\text{electron}}}{\left(\frac{1-v^2/c^2}{c^2}\right)^{1/2}}$$

electron mass

from ~~particle~~ Folive

$$E = \frac{a \sqrt{q^2 + g^2} c^2}{\sqrt{v^2/c^2 - 1}}$$

$$X_h = \frac{h\nu}{(B+\gamma)c^2} = \frac{1}{\sqrt{hc/137}}$$

elec charge noise N.Y.N.N. charge of soliton (1/137) mtr. magnetic charge

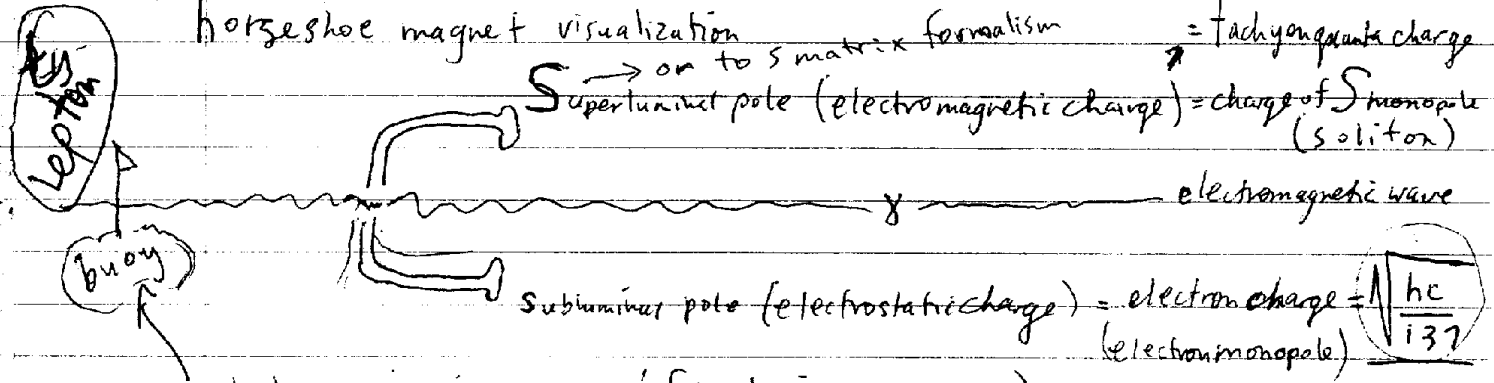
value of Higgs field in ty potential

$$E = \frac{a \sqrt{(ne)^2 + \left(\frac{nh}{e^2}\right)^2}}{\sqrt{v^2/c^2 - 1}}$$

$$X_h = \frac{h\nu}{(B+\gamma)c^2} = \frac{\sqrt{hc/137}}{\sqrt{hc/137}}$$

scalar (vacuum potential) frequency data input (not noise) Superlumina visible electron

Simplify - imagine just one hydrogen atom and electrons and electrons in vacuum = $\sqrt{\frac{hc}{137}}$



possible influences neutrino

electron rises in energy (floats in vacuum)

graviton influence

free electron

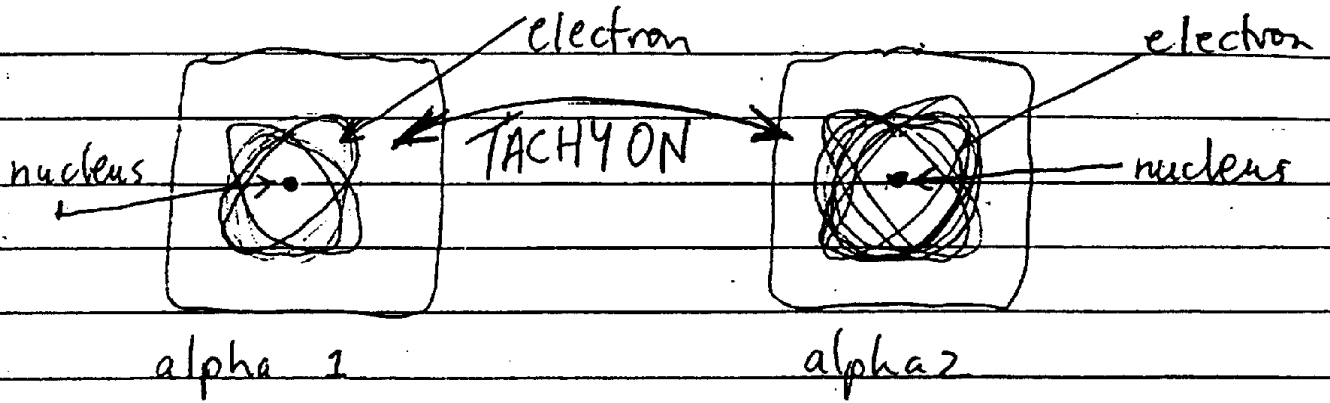
to experience perturbations from ty + from electromag waves

orbits are anywhere in cavity at highest (or most elliptical orbits) just before becoming completely chaotic) explains Free Spontaneous photon phenomenon which I witnessed at the time of Christopher R. Davy March 2000. 1995 when I did experiment.

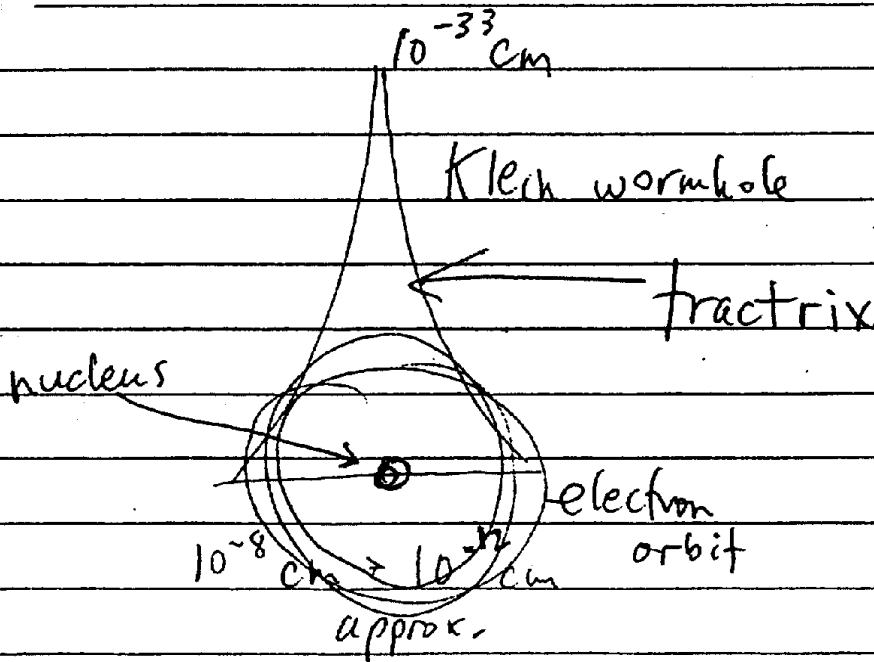
quantum cavity
electrodynamik
vacuum

quantum cavity
electrodynamik
vacuum

(13)



A Tachyon should cause an instantaneous * perturbation when systems are resonant through Klein wormholes.



* no "time delay" because of existence of superluminal tachyon aether carrier.

C. Davy

C. Davy

[Signature]

