STAIF II
The Space Technology & Applications International Forum

Space-time Perturbation with N-dimensional Geometry in Rotating Bodies.

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Abstract

The experimental loss of weight in the Morningstar Energy Box[i,ii] may speculate that the rotating Poynting Vectors act upon an N-Dimension axis; implying that the weight (W) loss is an effect upon gravity (g) and/or an effect upon mass (m). A hypothetical premise of this research assumes that quantum gravity is part of the space-time manifold that is constantly fluctuating and what we perceive as smooth and steady "space-time" is merely an average of these oscillations. The manifold can be considered to fluctuate not only in space-time but also in dimensionality. These perturbed quantum fluctuations access N-4 dimensions, where N is a large number, other than the familiar x, y, z, and t coordinates of space-time. Normally, the contributions to particle mass from these variations into the other N-4 dimensions can be neglected; however, we can imagine that in some circumstances, such as in the presence of Poynting vortices or turbulence, those quantum fluctuations of space-time can be intensified. Particles would then spend proportionally more time in higher dimensions, and appear to lose weight. The nonlinear field production as it relates to space time may be a way of understanding how Gravitational waves interact with electromagnetic waves, causing space-time turbulence.

Key Words: Poynting Vector, N-Dimensional Space, Gravity, Perturbation Theory, Time, Bumpy Manifolds.

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Further Investigations of the Operation of a Poynting Vector Motive Device.

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Abstract

An investigation was interested in determining some potential explanation(s) for the unusual performance of a Poynting Vector Motive device. The device, which initially weighs 190 pounds, was able to reduce its weight by 7% during steady-state situations and as much as 20% during transient operation. In our original paper, three or four approaches were initially identified for why the weight might change during operation. Some of these plausible explanations included:

- The conversion of angular momentum into linear momentum.
- Gravito-Electro-Magnetism (GEM) effects- This notion uses a Poynting vector force induction based upon the roller design.
- Retarded Potentials- The ring component acts as a reflection plane for the roller electric and magnetic fields and if the time is retarded, it is possible that the image from one roller may attract the adjacent roller to create self-acceleration.

Since the test series, several additional possible explanations were identified in the operation of this nonlinear device. There is caution, however, regarding these approaches of explanations in that they should fall within supportable technical evidence. These additional efforts include: Cogravitation, Matter waves, gravitational wave effects and a conjecture thru the 'N' Dimension axis. With this additional spectrum of feasibilities, a serious need warrants to determine what physical motivation can actually induce the examined weight changes because this may impact synthesizing a future space propulsion concept.

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A Conjecture on Quantum Horizontal Gene Transference

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Abstract

The possibility of genetic information transference may hypothetically occur through quantum entanglement of microscopic photon-pairs that use larger groupings of particles (>10^{12} atom groups); and/or simply through the use of photons as a data carrier is gaining more notoriety in the world of evolutionary biology. With regard to the potential transmission of genotype (information) or even phenotype (chemical) media this represents the transmission of a vast amount of data - this data can be utilized as raw data stored and transmitted for computing; in medicine to seed bacteria and viruses with inherent weaknesses, to even employ low frequency EM waves in the eradication of certain viruses; and finally as a possible future means of creating transport over large distances for complex organisms.

Keywords: Macroscopic Quantum Entanglement, Plasmid Transference, Horizontal Gene Transfer, Teleportation, Quantum Computing, Bio-Computing, DNA, RNA.

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GEMS (Gravity Electro-Magnetism Strong) SU (5) Theory and The Prediction of Exchange Boson Masses

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Abstract

The GEMS SU(5)(1) theory includes short range Nuclear Forces in the GEM unification theory(2), where the importance of the square root of the proton-electron mass ratio: σ = 42.8503 was found. The creation of mass by a Higgs field coupling must, by the Equivalence Principle, be viewed in the context of General Relativity. This is done here using Kaluza-Klein theory in a Feynman-Hawkings path integral formalism. GEM theory, quantum concepts of virtual particles, and ZPF (Zero Point Fluctuation) allow understanding of the Strong Force and Weak forces as the extension of electrodynamics in the quantum limit. The Strong and Weak forces are found to be associated with EM models of the electron and proton as finite sized structures respectively. Higher order Mie resonances off the EM "mass at a distance" structures associated with the electron, proton and fifth dimension generate the charged quanta with masses of the pion $m_\pi = 2\ m_e /\alpha \cong 140.0$ MeV and W boson: $m_W = 2\sigma\ m_p = 80.4$ GeV. The uncharged quanta: η_c meson $m_\eta = 2980$ GeV is identified with the 5th dimension compactification force mediated by the Radion field. Another neutral particle associated with this mass inducing field is the "Radion" or Higgs scattering quanta off the fifth dimension with a mass $\sigma\ m_\eta \cong 128.6$ GeV which is the Higgs Boson. A GEMS SU(5) Georgi-Glashow model, is proposed, where the unification energy is now the Planck energy.

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SRF (Synchrotron Radiation Fusion) Drive For Interplanetary Space Craft.

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Abstract

A concept first proposed by the author in 1991 in presentation on advanced propulsion before the NASA Synthesis Group (1.) is that of using the synchrotron radiation from D-He3 fusion plasmas to heat a mirror confined hydrogen plasma for propulsion. This concept was explored by in detail in 1993 in NASA funded research and found to be successful (Santarius, et al 1997). In this concept a fusion temperature Tokomak plasma burning d-He_3 can transport megawatts of power to heat a propulsion plasma without any energy conversion hardware and with both the fusion and propulsion plasmas separately optimized for their respective roles. Separation of plasma from the magnetic nozzle, a serious problem in all plasma propulsion schemes, will also be discussed.

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A Proposed Architecture for a Low Cost Mars Human Colonization Campaign

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Abstract

As the success of Spaceship 1 and SpaceX Falcon and Dragon efforts have shown, private consortiums can now launch low-cost human missions into space. They can do this at much lower cost than government efforts based on streamlined management and taking maximum advantage of existing, government developed technologies. For private consortiums, cost is a much more important factor than it is for governments, so a simple "bare bones" approach holds much more appeal. In this spirit, it is then possible to propose human missions and even colonization of Mars based on principles of: low cost, clever employment of near term technologies, maximum employment of space resources, and the spirit of human adventure. Building on previous work by the author (1.), this proposed Mars Human Campaign, establishment of a permanent self-supporting colony is the goal and this is accomplished by using a mixture of chemical and Solar Electric Propulsion based on the MET (Microwave Electro-Thermal thruster)–water propelled thruster, Lunar gravity assists, an expedition "base camp" on Phobos, immediate utilization of Mars resources, and establishment of a Mars surface tele-robotically before human occupation. Human Missions that establish colonies based on, initially, "one way trips" will also be discussed. Since the most dangerous and least developed portion of a human Mars mission is the return trip to Earth. Most specifically: the ascent from Mars surface to Mars orbit.

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Mars One Year Mission Craft

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Abstract

Traveling to Mars with a human crew poses challenges exceeding those facing the Apollo astronauts in terms of time, equipment and threatening environment. One problem is that access to Mars/Earth windows of travel are one to three years apart, not almost daily as for Apollo. When accessible, the round trip travel time for a chemical powered spacecraft is about 990 days, including a 480 day surface stay, whereas for the nuclear powered spacecraft assumed here only 370 days, including a 41 day surface stay. The former could very well doom the human crew because of the space radiation dose absorbed during the transits. Nuclear propulsion and radiation are thus strongly connected. Earth departure and arrival is not the surface of the Earth, but rendezvous in low Earth orbit with an ISS.

Before astronauts depart for the Martian surface there should be a cargo craft that precedes the astronauts with life support materials to the surface as well as reconnaissance vehicles and scientific materials that are to remain on the surface. For a human crew, with their transportation and survival resources kilometers from their landing site is unacceptable since long walks are not possible in current space suit concepts. When the crewed spacecraft arrives it is vital that they establish the orbital parameters and their location with respect to geological features. Even then experience with the Soyuz capsule demonstrates how imprecise an Earth re-entry and landing location can be. Recommending is a modest L/D maneuvering cargo glider based on the Russian "Kliper" concept to assure landing within a hundred meters of each spacecraft. The crewed glider is based on the high L/D, inherently stable USAF FDL-7C/D derived glider. An exploration vehicle powered by in situ manufactured CO_2 and silane can explore the Martian surface much faster and efficiently than with rovers or rocket-powered 'hoppers'.

None of our human space hardware has been exposed long term to the harsh Martian and space travel environments with the strict requirement it must not fail. Thomas Stafford, Lt-Gen. (ret) has consistently recommended we qualify our Mars vehicles and equipment on the surface of the Moon before we commit it to a Mars journey. A Mars mission is an opportunity to make significant progress in the exploration of another planet. This paper proposes a comprehensive spectrum of vehicles and resources to attempt a one-year round trip mission to Mars including a 41 day stay on the surface. One significant challenge is that:

1. We have NO launchers capable of lifting the assembled modules to LEO nor of lifting the crew resources to LEO
2. We have no nuclear propulsion to enable an astronaut's safe one-year journey. The space radiation issue is critical, and imposes Earth-Mars transit times. In any event, shielding of crew is necessary.
3. We have too many proposals stating that a simple, single vehicle is sufficient.
4. We have not addressed providing a modest gravity field sufficient to maintain the physiological gravity accommodation of the crew members.
5. We must to define adequate space radiation protection configuration and weight penalty.

Fusion Plasma Confinement with Specially Conditioned Electromagnetic Fields

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Abstract

A central fusion physics problem is the strong coulomb repulsion between fusion fuel ions that are being forced very close together so their fusion can occur. This strong resisting repulsion must be overcome by enormous compressing forces that are exerted by very strong electric or magnetic fields in fusion reactors. Mutual repulsion between fusion ions increases as they are driven closer by the very strong fields. Finally, the ions experience attraction rather than repulsion when their separation becomes less than the very short ranges of the SU (2) and SU (3) strong attractive nuclear forces acting inside the ions themselves. In this respect, Barrett (Ref 1) shows the possibility of conditioning ordinary U(1) EM fields into EM fields with the same SU(2) and SU(3) Lie group symmetry as the SU(2) weak and SU(3) strong force fields inside atomic nuclei. This has led the authors to explore the possibility of fusion fuel ions experiencing attraction inside SU(2) or SU(3) EM fields just as they would do inside the SU2 and SU(3) fields of the weak and strong forces that cause their fusion. For, if fusion ion attraction occurs in SU(2) EM fields at longer ranges than the ~10-15th power ranges inside nuclei which result in the ions fusion, less EM input energy would be needed.

How should we Deal with the Unknown?

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Abstract

A scientist asked about communicating with extraterrestrial entities, and in this context asked how DO we "deal" with such entities? More explicitly, "How do we deal with the unknown?" There are at least two aspects of *"unknown",* one which presents with no information and the other from which we can draw information. Yet, finding *knowns* begets new *unknowns*, from which are further derived more *knowns* by inquiry. *Knowns* also contain knowns, analogous to set theory, where a set that has elements designated as *knowns*. One can create a *known* from the *unknown* to fill a gap of understanding. This problem of induction permeates all these processes; just how to we make inferences? The original question, how to deal with *"the unknown",* now concerns the very quest for knowledge, itself. An academic's answer is to research the question, do an experiment, hold a conference, etc. Sometimes this is not satisfactory when quick answers are needed. The questioner's psychological or even religious perspectives, as well as the fragility of ego, or bias contaminate any pretense of objectivity. As to communicating knowledge to non-human entities, an outline scheme is proposed.

KEYWORDS: Aliens, Philosophy, Anomalistic Observational Phenomena, High-Frequency Gravitational Waves

Our Mind Looks At Us

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Abstract

Over the years, especially since 1947 when the pilot Kenneth Arnold reported seeing nine unidentified disk-shaped aircraft flying near Mount Rainier, people have been fascinated with unidentified flying objects (UFOs). Partially in response to this increasing interest, and perhaps because of a general malaise of the population wanting to escape from this planet and its problems to another and more pristine world, the Search for Extraterrestrial Intelligence (SETI) was born in 1984. Aside from the inherent problems in receiving messages by current SETI methods, there are other and more substantial issues having to do with identifying the life forms that may be encountered. Such questions exist as what constitutes intelligence, our ability to recognize it, and above all, how we can incorporate the experience in our lives. Humans are encased in their own bias, and we ask whether meeting a non-human intelligence, either one of our own creation or in interstellar space would be a way of getting outside that bias and looking at ourselves from a dispassionate point of view. Thus, our theme emerges: "Our Mind Looks at Us." An overarching consideration in all of this and one immediately relevant to the Space Technology Applications Forum (STAIF) is that of interdisciplinary communication. This is involved in two ways: First, there is the challenge of communication with visiting intelligence. Second, is the ability to communicate among ourselves from different disciplines and viewpoints as well as being able to venture together as a whole species in addressing the first communication challenge? In this paper, a philosopher and a physicist open that discussion, hoping to pave the way for many more dialogues to come.

KEYWORDS: Extraterrestrial Intelligence (SETI), non-human intelligence, Unidentified Flying Objects (UFOs), High-Frequency Gravitational Waves (HFGWs), interdisciplinary communication, cyborg..

A Layman's View of The Red Shift

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Abstract

The big bang theory (BBT) is based on the assumption that the galactic red shift is Doppler induced. This would mean that everything red shifted is moving away from us; the further the shift, the greater the distance. This theory has encountered numerous observational contradictions that include: cosmic microwave background (CMB) radiation, dark matter, dark energy, super relativistic galaxy velocity, contradicting red shifts, colliding galaxies and quasar red shifts. Fixes that were proposed for these problems only increased the difficulties and incited antagonism to the theory by an increasing number of astrophysicists. A steady state theory, in lieu of the BBT, does not face these problems and is gaining increasing support. There are many unknowns in astronomy and a search for the correct answers should be based on a more sound theory. Anyone working in the field of astro-space or space travel would be better served by a proper definition of the medium that they are exploring. An appropriate theory better serves the advancement of science.

Unification Theory Using Zero Point Energy

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Abstract

All of the quarks, electrons, gravitational fields and electrostatic fields known today can be produced by neutrinos, which are zero point energy particles (ZPE). The force fields are produced by coordinated helices of the neutrinos. All of the known standard particles are produced by individual neutrinos in resonance with the surrounding volume of neutrinos. The cosmos has been here since eternity. It started as a uniform sea of neutrinos at an ambient temperature and in the ensuing time has arrived at where it is today: a universe, static and infinite. Knowing that everything known today: particles and fields are produced by neutrinos should simplify theorizing. Anyone planning extraterrestrial voyages would be better served to know the environment into which they are going.

The Viper Pulsed Fusion Rocket Versus Prior Fusion Space Propulsion Designs

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and George Chen

Abstract

In this presentation, the recent design study of a pulsed fusion propulsion concept called the Viper Pulsed Fusion Rocket by Orcutt et. al. [2] will be compared to previously published fusion space propulsion concepts. C. Williams reviewed many early fusion propulsion studies in 1997[1]. Those studies confirmed that fusion space propulsion can extend the boundaries of human space exploration by providing unparalleled power budgets to a spacecraft's propulsion system, life support system, and electronics. Fusion power can be used directly to super heat propellant for thrust or, the energetic fusion products can be used directly as propellant. Some of these systems were operated strictly under steady-state conditions for long-duration continuous power output, while others are designed for short-burst pulsed operation and hence, known as -pulsed fusion propulsion.

The newest conceptual design study, the Viper Pulsed Fusion Rocket (PFR), is an ultra-high ISP, variable thrust propulsion system design developed as an unmanned probe for outer solar system exploration [1]. The Viper PFR employs an aneutronic Inertial Electrostatic Confinement (IEC) fusion device producing ISP in the range of 10^4 – 10^6 seconds with advanced p-^{11}B fuel and a neutral propellant. The IEC is fed highly ionized p-11B by an advanced RF permanent magnet helicon array. Anisotropic alpha particle products are magnetically collimated and about 10% of their energy is directly converted to electrical power needed for secondary systems such as sustaining the reactor. The remaining fusion product energy is quasi-equilibrated with a neutral gas such as hydrogen and magnetically exhausted. Through the revolutionary coupling of a pulsed mode helicon array, Viper PFR accomplishes power gains of > 7 by achieving ultra-high plasma densities in the IEC confinement methodologies operating in a non-Maxwellian beam-beam plasma mode. Viper PFR fills the medium-to-heavy scale of an interstellar-capable probe with launch mass of approximately 30 MT and a total power production of 358 MW. A study of approximate scaling between Viper PFR and previous IEC fusion engine designs for manned space missions [3] will also be presented.

References

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A Space Power Source Based On Low Energy Nuclear Reactions (LENRs)

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Abstract

We report on anomalous heat, attributed to Low Energy Nuclear Reactions (LENRs), generated from metal alloy nanoparticles loaded with hydrogen (or deuterium) through pressurizing the vessel containing the particles. The primary result thus far is that the excess energies obtained in all experiments to date are all well above maximum estimation of what could be attributed to chemical reactions. The discovery of ultra high-density hydrogen cluster formation in void and dislocation loops has allowed us to develop host materials that give highly reproducible results. The hydrogen in these clusters is close to metallic density and theory shows the cluster atoms can react when another hydrogen diffuses in transferring momentum to the cluster atoms. The external power/energy input involved is minimal compared to the output, indicating a very large energy gain. Due to the low energy initiating the reactions (vs. fission and hot fusion reactions), the compound nucleus formed has little excitation energy. Thus it follows decay channels leading the stable or near stable reaction products. As result, despite these being nuclear reactions, the products have minimum radioactivity. In view of its very high energy density and lack of nuclear waste, power units based on LENRs are very attractive for space power for aggressive future mission. A summary of recent experimental data an update on corresponding theory will be presented.

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Space Drive Propulsion Principle from the Aspect of Cosmology

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Abstract

A concept of space drive propulsion system as a paper entitled "Space Strain Propulsion System" is introduced by Minami in 1988 [1]. The term of "space strain" is changed to "space drive" receiving the recommendation by Robert L. Forward [2]. After then, the second paper entitled "Possibility of Space Drive Propulsion" is presented at 45th IAF 1994 [3].

Assuming that space vacuum is an infinite continuum, the propulsion principle utilizes the pressure field derived from the geometrical structure of space, by applying both continuum mechanics and General Relativity to space. The propulsive force is a pressure thrust that arises from the interaction of space-time around the spaceship external environment and the spaceship itself; the spaceship is propelled against space-time structure. This means that space can be considered as a kind of transparent elastic field. That is, space as a vacuum performs the motions of deformation such as expansion, contraction, elongation, torsion and bending. The latest expanding universe theory (Friedman, de Sitter, inflationary cosmological model) supports this assumption. Space can be regarded as an elastic body like rubber. In the latest cosmology, the terms vacuum energy and cosmological term "Λg^{ij}" are used synonymously. Λ is a constant known as the cosmological constant. The cosmological term is identical to the stress-energy associated with the vacuum energy. The properties of vacuum energy, i.e. cosmological term are crucial to expansion of the Universe, that is, to inflationary cosmology.

In the beginning, the acceleration generated by curvature of space induced by strong magnetic field based on external and internal Schwarzschild solution was studied [1, 3]. However, superior acceleration based on de Sitter solution is obtained at present, which does not require a strong magnetic field. ***The acceleration derived from de Sitter solution does not require a strong magnetic field. At the present day, space drive propulsion system based on de Sitter solution needs not strong magnetic field but the technology to excite space***.

Inflationary universe which shows rapid expansion of space is based on the phase transition of the vacuum exhibited by the Weinberg-Salam model of the electroweak interaction. The vacuum has the property of a phase transition, just like water may become ice and vice versa. This shows that a vacuum possesses a substantial physical structure such as the material. It coincides with the precondition of a space drive propulsion principle [4, 5, 6, and 7].

As is well known in cosmology, the expansion rule of the universe is governed by the Friedman's equations and the Robertson-Walker metric. In this paper, the propulsion principle of space drive is introduced from another angle, that is, the pressure of the field induced by local expansion of space is completely considered in the propulsion principle.

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An Assessment Concerning Neutron Stars and Propulsion Implications

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Abstract

There are many uncertainties concerning stellar evolution. Several different models for neutron stars are discussed. A neutron star's magnetic field may be created by differences between the neutron core and a gas surface layer of protons and electrons. These differences between the layers, which constitute charges and moving currents, result in a magnetic field supported by a fast moving rotating core. Neutron stars might possess quadrupoles or multipolar architecture in lieu of a single dipole claimed by the conventional wisdom. The multipole issue cannot be resolved using a single point observer reference point such as the Earth, but would require an additional non-terrestrial observer location with a significant offset. Without observing multiple beacons, we could not verify or deny the existence of multiple poles from observing the sweeping lighthouse effect from Earth. Additionally, if electrons in Cooper pairs exist in a neutron star, then the amount of magnetism may increase by a similar order via superconductivity. By symmetry, proton pairs should also exist to produce similar effects in terms of charge redistribution. Observing the different layers rotating over a neutron core can provide insights to develop a strong magnet that has implications for developing a space propulsion scheme.

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Gravitational Shocks, Shock Waves, And Space Propulsion

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Abstract

Different gravitational laws exist that possess several interesting possibilities. These incongruent laws fall within a spectrum that covers an extreme from elliptical equations for Newtonian gravitation to hyperbolic or wave equations demonstrated by other laws from Jefimenko to Einstein's relativity. If each of these equations is valid for specific conditions, then this has an interesting counterpoint with conjectures that should expect similar behavior between gravity and say, fluid dynamics. Here, Newtonian gravitation appears similar to subsonic flow while the other laws represent supersonic flow. This approach advocates identifying experiments that may observe gravitational shock waves embedded in regions with different distinct strength gravitational fields. If a physical reality can be found, this notion requires looking at pieces of separate experimental projects to better understand such events and behavior. This would also exploit using gravitational shocks in a propulsion system for creating thrust to possibly shadow or repel gravitation that might allow disruptions that can induce thrust or directional control. Variations in energy to generate mass might create distinct and separate gravitational fields to produce gravitational shocks. Such an investigation is warranted for mankind to exploit these embryonic technologies that potentially may develop a propulsor capable of moving faster than the speed of light.

AIAA Associate Fellow

A Tutorial to Solve the 'Free' Two-Body Celestial Mechanics Problem

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Abstract

The original definition for the 'captured' 2-body Kepler problem usually requires bodies that have a large difference between their separate masses. The larger body is usually assumed unmovable and centrally located that provides a gravitational attraction significantly influencing the smaller or satellite body. In research of binary pulsar orbits, the two bodies may have similar weight masses and both 'free' bodies generate separate orbits. The conventional wisdom suggests that the two bodies having similar weights may produce highly elliptical trajectories while other pulsar binaries with different weights produce orbits that may be circular. This behavior is counter-intuitive. The only explanation assuming that these weight estimates are correct, is that these orbits are either premature with yet to be stabilized orbits or that the neutron star may be altering gravity due to excessive axis rotation. In this analysis, several orbits are examined for these 'free' orbits. These orbits have a line through both of the two bodies and the barycenter coincides at the 'common' focal point for the two orbits. This requires a different way to deal with the equations because of the length of the distance between the two bodies compared to the barycenter. A closed-form solution is presented for the free two-body problem.

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Is all of the Matter in the Universe Nothing more than a Fourier Transform of 'Something Else?'

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A number of disparate physical phenomena escape rational explanations within the present-day paradigm of Modern Physics. A simple conjecture on the nature of the 10-dimensional universe that embeds our 4-D space-time will be put forward to explain some of these phenomena. To wit, such anomalies as the apparent absence of anti-matter in the 4-D universe, the half-life of the proton, quirky unreliable outputs from cold fusion experiments, why the first thermonuclear "weapons" were so large, why so many thermonuclear tests, and why laser fusion might be impossible, will be discussed. Related will be why, if all the energy in the universe could be likened to a steel can of gasoline, then trying to extract energy from zero-point vacuum would be the equivalent to dumping out the gasoline, converting the can to steel wool, and lighting the steel wool. These are all related in the new paradigm. In this new paradigm, for example, "particles" and their associated: "waves" are viewed as multi-dimensional Fourier transforms of each other "particles" being within the spectra of "waves." The viewpoint put forth will neither contradict any of the standard conventional methods nor refute any of the results. To the contrary, a different paradigm will view many of the processes successfully dealt with by Modern Physics. In addition, the new paradigm gives hints that explain some mysteries where it might be possible to design experiments to verify its physical significance.

Three Inventions

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Abstract

Concepts for three energy inventions will be discussed. The three inventions are:

(1) A wedding of solar PV electrical generation with conventional Diesel-engine technology. Described will be a patented system that combines output from solar PV cells and a Diesel engine that can run on waste vegetable oil. The system has its parts connected to a control system that regulates the engine speed to continually have a combined steady power output.

(2) A solar tracker that utilizes the ability of solar PV cells to not only generate power but also to act like conventional diodes to actuate off-grid solar energy to power motor to follow the motion of the sun. The tracker is a platform upon which a large solar collector or even a solar oven can be mounted. No photocells or computer chips or batteries are need.

(3) A new and untested concept of utilizing wind energy to power a generator that has no external rotating parts, yet can theoretically be built as large as wanted. Bernoulli's principles relating wind speed to pressure, as well as fluid-dynamic principles are to be utilized to construct structures that maximize the differences of pressure around the structures. The differences in external pressures can be used to drive internal dynamos.

Engineering The Possible States

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Abstract

Possible states theory concerns the propagation of change in the collection of possible states. The possible states are past, future and possible interactions of objects with one another; these states are not ordered geographically or time-wise, but by similarity. Possible states theory is compatible with quantum electrodynamics in a finite and discrete environment. All states are considered to coincide in the complex present and to interact with one another. The ability to manipulate the possible states potentially enables faster than light travel, virtually free energy and the development of sentient technology. Possible states results may be extremely large in comparison to their conventional energy inputs. The theory makes no distinction between mental and physical phenomena. Acts of mind are treated as possible states interactions; they may have independent existence and can be shared or linked with physical objects. Sentience is represented by coherence in a collection of possible states; accordingly it must be viewed as widely distributed and as a matter of degree. In principle, any act of mind may be accomplished by technology, which offers both potential benefits and cautions. The possible states are manipulated by attention. The acquisition of this advanced technology requires a sophisticated understanding of mental acts. Much of the original knowledge base concerning acts of mind was lost in antiquity. It may be retrieved in part through the study of archaeological artifacts and ancient literature. Dualism remains ingrained in contemporary society; nevertheless dramatic scientific progress can be made by adopting a unitary theory of change.

Keywords: possible states theory, sentience, intelligence, dualism, sentient technology, advanced technology, truth

The GROUP Mind

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Abstract

Given the inconceivable vastness of the universe, our primary asset is not our technology or the resources we control; it is our sentient individuals. The most valuable commodity in the universe is not energy but sentience. A species whose individuals learn to pool intellectual resources enjoys a distinct competitive advantage. In a survey of multiple advanced alien species it was found that each one employed some form of collective intelligence. Human groups lack the cohesion and efficiency found in a true group mind. The cause apparently lies in the sacrifice of autonomy that is made when humans join a group. The larger the group the less autonomy each individual retains. In consequence the intelligence of a group diminishes as a function of its size. Nevertheless humans are able to form a temporary, true group mind in which individuals retain autonomy. The knowledge, intelligence and skills of the participants are pooled, enabling the group to perform feats which no individual member acting separately could accomplish. The group functions as a single intelligence with an enhanced intellect and the ability to perform multiple tasks simultaneously. Skills may be transferred during the event and retained afterward. The procedure is non-invasive and entirely voluntary; a participant can exit the group link at any time. Scientific experiments can be performed; the group mind is a powerful tool of scientific discovery. The demonstration will set up a group mind and perform a task of scientific interest.

Keywords: Intelligence; Autonomy; group intelligence; group mind; possible states theory

Magneto-acoustic resonance modes in Coler-type apparatus

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Abstract

Coler's original electro-magnetic apparatus was developed around 70 years ago and was claimed to provide an unexplained source of energy, of potential use in deep-space missions. Recent investigations concerning this apparatus have explained certain phenomena by hypothesizing that there exist longitudinal acoustic resonant modes within the magnetic cores used. However, differences in the amplitudes of the observed modes were unexplained. In the present paper, it is shown that this hypothesis will explain the differences in resonance amplitudes when the non-zero length of the excitation coil on each magnetic core is taken into consideration.

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