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SUMMARIES by Robert Heaston of all of *15TH NPA* CONFERENCE papers.

This issue of the *NPA Newsletter* summarizes the papers of the *15th Natural Philosophy Alliance Conference*, which was held on 7-11 April 2008 at the University of New Mexico in Albuquerque, NM. We are grateful to the *American Association for the Advancement of Science (AAAS)* for being able to hold our *15th Annual Conference* in conjunction with the *83rd Annual Meeting of the AAAS-Southwest and Rocky Mountain Regional Meeting (SWARM)*. We also offer our thanks to the University of New Mexico and the Sandia National Laboratories who were the local hosts.

The theme for the *15th Annual NPA Conference* was ***"Building a Better Physics Paradigm".*** Thomas S. Kuhn popularized the concept of a paradigm, mostly oriented towards physics, in his 1970 book *The Structure of Scientific Revolutions*. "Paradigms are universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners." Anomalies and crises provide warning signals that a paradigm is in trouble and needs some adjustments or radical changes. Members of NPA point out a number of trouble spots and anomalies in the current paradigm and make several suggestions on what might be a better approach to physics.

A total of 88 summaries of papers are contained in this *NPA Newsletter*. A little over half or 47 of the summaries were papers presented at the *15th NPA Conference* and 41 summaries of papers submitted *in absentia*. Papers were submitted by authors from Australia, Austria, Ecuador, France, Germany, Greece, India, Malaysia, Mexico, Poland, Russia, Sweden and the United States. If no abstract was contained in the "Conference Program," or at www.worldnpa.org, no summary is included. Summaries were prepared with the intent to report the most positive aspects that the authors concluded and how the results were obtained. But, a collective bit of advice to authors is in order. Many of the papers fail one or more of six criteria (most mainstream papers fail as well): statement of assumptions, definitions of terms, presentation of sufficient detail so as to replicate/reproduce, ability to test or to observe directly or indirectly, simpler than competitive approaches (Ockham's razor), and a statement of the value added to the pool of knowledge. These are overlooked in this case because a germ of an idea or a nascent talent needs the chance to grow.

Notes, abstracts and complete papers, when available, were used to prepare the summaries. Information on www.worldnpa.org was particularly useful, thanks to David de Hilster. Equations and special symbols were omitted because of printing guidelines for the *NPA Newsletter*. Summaries average 136 words. Authors with only one paper tend to have longer summaries. The Editor accepts responsibility for any misinterpretation of the papers.

All of the papers were grouped under eight topics. These topics (number of papers in parentheses) are: Philosophy of Science (12); Special Relativity Theory (11); Electromagnetism (5); Quantum Mechanics (15); Aether (17); Cosmology (13); Mathematics (8); and General Relativity Theory (7). The Editor did consolidate and move some papers under other topics after reviewing the contents in more detail. Summaries are placed in proximity to authors with similar views. A brief discussion of the highlights of issues and results are given at the beginning of each topic area.

In this Issue:

Summaries by Topics

Philosophy of Science. Twelve papers intentionally evaluated the past, present, and the future of the physics paradigm. Challenges are expressed as questions. Are changes in Newton's law of gravity necessary? Can we believe that the Maxwell equations are universally applicable? Is Einstein's light postulate still valid? Are critical cosmological data being ignored? If the big bang theory is flawed, what should take its place? Could rearrangement of the primary building blocks of the current physics paradigm provide leads to new theories? What are the connections between electricity and gravity? What is dark matter? Do the laws of motion and spacetime need to be reexamined? Is the universe finite or infinite? Does the goal of a theory of everything make sense? WANTED: An idea here that can influence thinking everywhere.

Spencer [76][1] briefly reviewed the history of the founding of the *Natural Philosophy Alliance* and its first meeting in San Francisco that featured Linus Pauling. Then she discussed a series of questions and issues that will be challenges for the future. Is the velocity of light a constant as was postulated by Einstein? Or can we conclude that the universal time postulate, that the velocity of light is a constant relative to the source at any instant, is the only postulate that is consistent with all of the experiments hitherto analyzed? Is Newton's law of gravity universally valid, or must it be modified to take into account the seasonal variation that was discovered by Monti? Can we believe that Maxwell's equa-

Note[1]: The bracketed numbers, e.g. **[76]**, refer to the Index number on pages 14, 15 where the title and author address are provided

tions, as postulated by Einstein, are universally valid, or must they be replaced with the New Gaussian Electromagnetic Theory? We will also have to reexamine chemistry and the structure of the periodic table, quantum theory, quantum entanglement, and the promises of nanotechnology. Another paper discusses what nuclear engineer **Roger Rydin [66]** and some of his associates in the *Natural Philosophy Alliance (NPA)* have to say about critical cosmological data that is being ignored, about obvious errors in relativity theory, and about new particle and gravitational theories that might point the way to new directions in physics. All of the selected NPA authors point to theoretical failures in the Big Bang model, to unwarranted corrections made to experimental cosmological data to make it fit the Big Bang model, and to conceptual errors in particle physics brought about by including relativistic theories and corrections that do not adequately explain all the experimental data. Many of these new ideas represent simpler theoretical models that explain more experimental data, and hence meet the essence of *Ockham's razor* as areas worth developing.

Whitney [87] drew a blueprint of the historical development of physics in general, highlighting present-day contributions from *Natural Philosophy Alliance* participants in particular. The metaphor for physics as a building project involves a number of unwieldy building blocks in not-completely-stable relations to each other. Some of the major building blocks were Newton, Maxwell, quantum mechanics, quantum chemistry, quantum electrodynamics, elemental particle physics, special relativity, general relativity, big bang theory and the two-step light postulate. Stresses and strains are pointed out in the arrangement of the primary building blocks. Redesign/rebuilding efforts are recommended. After 15 years of nurturing within the *NPA* and a decade as Editor of ***Galilean Electrodynamics***, some of **Whitney's [88]** ideas are now getting attention. She has been asked to write articles for some "mainstream" journals. How did such a thing ever start to happen? For what it may be worth to other *NPA* people with similar goals, she offered some comments on what has occurred. One bit of guidance that she offered was not to try to replace existing theories such as special relativity or general relativity theory but to build upon them in some positive manner. Her building block metaphor of the previous paper reinforced this observation.

Jaroslav Klyushin [39] from Russia presented the *John Chappell Memorial Lecture*. From his point of view the pressing questions include: 1) Do you agree with the Maxwell equations? What do they describe? Perhaps the direct force formulas by Gauss, Weber, Spencer, Grassman, Ampere, or Wittaker are better in this or that aspect; 2) Do the Maxwell equations describe interactions? If not, does the Lorentz force formula do it better? 3) Why is the relativistic approach sometimes successful? Can we reach the same effects in another way? 4) What are the connections between electricity and gravity? 5) The gravitational field has dimensions of acceleration. In order to compare two different things, we must describe them with the help of the same dimensional language. What is the mechanical dimension of electricity? Klyushin used a number of examples and equations to pose his questions.

Müller [46] from Germany suggests a list of nine topics that have become entrenched worldwide in teaching theoretical physics that should be reconsidered and tested as to their truth. And all of them fail to pass the test. He gives brief comments on each topic, which are: 1) universal creation by one big bang; 2) solar systems creation from dark matter; 3) circling of electrons in atoms; 4) neutron as an elementary particle, 5) the structure of neutrinos; 6) sizes of atomic nuclei; 7) group velocity / delay; 8) a missing fifth Maxwell equation; and 9) nuclear forces other than electromagnetism.

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Rulers and clocks do not exist independently of the world; they are only choices among phenomena. Time and space do not exist without the other; they are the two faces of the same substance. **Guy [24]** from France suggests that the primary substance is movement, which is associated with any finite amount of matter, a finite amount of tangible reality. Space is associated with the cardinal aspect, the total amplitude, the fraction of the movement; time is associated with the ordinal aspect, the process of the movement. The practical distinction between space and time does not refer to a pre-established break within reality, but is made possible thanks to the multiplicity of the material points of the world. These considerations make it possible to reinterpret the theory of relativity, and to re-write the Lorentz equations by giving to time a temporary vectorial character. These definitions make it possible to solve a number of problems and paradoxes that arise in natural philosophy and in contemporary physics.

The purpose of this note by **Emery [17]** is to question our most fundamental understanding of physics—Newton's First Law of Motion. The law says that a body in motion tends to move in a straight line with no causal explanation for the motion. The only legitimate cause is the influence of force that persuades an object to move in a straight line. Suppose at some point in creation, matter had no real shape or form. There were no planets, no stars only space with rotating clouds of dust and gas. It was only through time that celestial bodies were formed and bound together by gravity, which is not a true force, but only a fictitious force. Subsequently, celestial bodies have no real binding force from within and move about in violation of Newton's First Law.

This idea is consistent with general relativity theory where an object in uniform motion follows a geodesic path along the curvature of spacetime that defines gravitation.

The Second Law of Thermodynamics (SLT) states that the entropy or disorder of an isolated system can only increase. And yet, we see numerous systems all around us that clearly have decreasing entropy and increasing order: the SLT-Order Paradox. **Borchardt [4]** states that this paradox dissolves if one considers the universe to be infinite. Then, the SLT is a law of divergence; its complement is a law of convergence. Matter leaving one portion of the infinite, 3-dimensional universe invariably converges upon matter in another portion of that universe. Destruction in one place leads to construction in another place. The resulting complementarity shows the SLT to be a restatement of Newton's First Law of Motion in which the word "unless" is replaced by the word "until," in tune with an Infinite Universe Theory. Complementarity is essential for univironmental determinism, the universal mechanism of evolution stating that what happens to a portion of the universe is determined by the infinite matter in motion within and without.

There is but ONE reality in here and out there, and the search for it is based upon the premise that truth agrees with truth regardless of its sources or labels**. Asija [2]** delineates the challenges of finding and communicating the elusive but common reality to various communities of science, religion, paranormal and the public. The chances of success are greatly increased by application of faith in science and reason in religion. Another helpful tool is purging erroneous knowledge, especially if it originated from such icons of science as Aristotle, Galileo, Newton, and even Einstein. One technique employed is to use the *lowest common multiple* and the *highest common factor* of what is common between science and religion and every truth in between.

Coleridge's "Rime of the Ancient Mariner" inspired **Littmann [43]** to write this paper. A number of ideas are stated here as a question and others by a statement. Littmann discusses some potential answers.

Why isn't there a massive "negative" proton with a simple orbiting positron?

Why don't electron and positron orbit one another in a stable orbit?

Cases in astronomy of orbital periods of 2x, 3x, or 4x times the inner ones . . .?

Upper mass limits for gamma rays . . . Could it be 150 MeV?

Lowest mass limit of a photon when it can't manifest its full wavelength.

Four mystery transitions in physics: decaying nucleus, emission of a photon, emergence of a photon from an orbiting electron, and emission of a photon from the Sun into space.

Non-increase of mass with leap to c in positron-electron mergers. How?

How can a model be very predictive when the model doesn't correspond to reality?

Littmann addresses other issues about patents, politics, and pre-cursors. He concludes with these words by Confucius: "If terms be incorrect, then statements do not accord with the facts: and when statements and facts do not accord, then business is not properly executed."

Hohenberger [32] uses the **I Ching** and the **Kabbalah** (Cabala) to symbolically describe the universe. The world that we perceive is actually an illusion created within the boundaries of our mind. Our human world is not a replication of that world, but merely an enhanced representation much like Plato's myth of the cave. The universal world is filled with a single luminous substance, the stellar air, and all atoms and all objects are made from condensed stellar air, or liquid light, which are simply visual methods for describing pure energy. The entire universe can be visualized in its pure energy form, including integrated visions for gravity, quarks, electromagnetic waves, relativity, black holes, quantum mechanics, sub-nuclear particles, string theory, the big bang, and a steady state universe. Our human perceptions have a profound effect upon our abilities to develop a new paradigm for physics.

Special Relativity Theory. The special theory of relativity (SRT) was formulated by Einstein in 1905. Two principles/postulates are associated with SRT. (1). Principle of Relativity: The laws by which the states of physical systems alter are independent of the alternative, to which of two systems of coordinates, in uniform motion of parallel translation relatively to each other, these alterations of state are referred. (2). Light Postulate: Any ray of light moves in the "stationary" system of co-ordinates with the determined velocity c, whether the ray is emitted by a stationary or by a moving body. Six specific consequences are associated with these two statements: Lorentz transformation equations, red shift, twin paradox, clock changes, length contraction and mass-energy equivalence. Eleven papers address issues concerning SRT. Modern technology based upon accelerometers and computers can independently tell which set of coordinates is going the fastest so that the relativity postulate may have to be reformulated. The twin paradox, clock changes, and length contraction are acceleration dependent and are a general relativity theory (GRT) issue not an SRT issue. The Global Positioning System (GPS) corrects for changes in clock rates caused by acceleration and gravity. A bi-directional wavelength correction may be applied to the Einstein-Lorentz equations to improve experimental results. A thought experiment employing 16 clocks confirm clock changes and length contraction. Special considerations are necessary if moving objects involve electric charges. Any analysis of SRT involves a definite requirement to identify, assess and control the assumptions involved. The light postulate must consider the absolute phase speed and the relative speed of the wave front. It is possible to show that the length contraction and clock retardation come only from using the relativity principle.

Newton's first law of motion describes special relativity theory. Newton's second law applies to the case of general

relativity. As described by **Heaston [28]** modern technology has enabled individual objects to know their velocities using accelerometers in inertial guidance systems that measure increments of acceleration or deceleration and record them. If two or more objects have this capability, each object has an on-board history of its velocity. An historical asymmetry between moving objects can be measured. Since length contraction, time dilation, and the twin paradox are process changes, all three occur during acceleration or deceleration and are sustained during the ensuing state of uniform motion. A test using radioactive decay is suggested to differentiate between processes occurring in accelerated and uniform motion. The subsequent paper substantiates that clocks change during acceleration. As noted by **Carter [10],** time is usually thought of either as a separate entity that exists independently from mass and space or as an integral part of an entity called space-time. Although many different kinds of clocks have been devised for measuring the passage of time, a careful look reveals two different arrows of time that are quite distinct from one another, either inertial time or gravitational time. The Global Positioning System (GPS) satellites demonstrate that the rates of inertial clocks are affected both by changes in motion and changes in gravity. Thought experiments are presented to show the effects of motion-induced time dilation on these two different types of clocks and the actual mechanics of these changes in the rates of clocks is revealed. The conclusion is reached that there is really no physical entity called "time" but only a metaphysical idea that is used to quantify different types of motion.

Wavelength is generally accepted as the total length of one cycle of a given frequency. Conceptually this length, as measured along the X-axis, is the distance from the origin to the endpoint and extends in one direction, which means that the value for length also represents the value of the endpoint along the X-axis. **Bryant [8]** observed that the wavelength is bi-directional in nature and that the total value assigned to length does not also represent the position of the endpoint along the X-axis. This bi-directional wavelength characteristic is inherent in the mathematical derivations of both Einstein and Lorentz, but is not incorporated into their resulting discussions. Not only does this lead them to incorrectly normalize their resulting equations, they also incorrectly conclude that their input and output values represent points rather than lengths. Once the equations are corrected to account for bi-directional wavelength, we summarize how the corrected equations yield equal, or better, experimental results for frequency-based and wavelength-based experiments than the existing Einstein and Lorentz equations. This finding of bi-directional wavelength, along with the recognition that the equations transform lengths instead of points, will require a suggested revised theoretical approach called the Complete and Incomplete Coordinate Systems Model.

Hodges [31] from Australia proposes a thought experiment involving a series of diagrams in which four orthogonal streams of robotic clocks enclose a stationary observer in a square where the direction of those streams is anticlockwise as seen from above. The experiment begins with one stream of 16 equidistant clocks, all synchronized according to Einstein where each moving clock is allowed to transfer its clock reading by direct contact (Halsbury transfer) to a clock in a second stream of clocks coming in from the right. When this process is repeated for each corner the result is an unbroken circulating loop of equidistant Einstein-synchronous clocks which has the appearance of a snake chasing its tail. The stationary observer then makes the startling discovery that the clock reading of the "head" clock of the circulating snake is retarded instead of being in advance of the clock reading of the immediately proceeding "tail" clock. This demonstration has a number of implications since moving observers can no longer maintain (a) that their clocks are unslowed, (b) that their measuring sticks are unshrunk, and (c) that light is isotropic with respect to their individual selves. Special Relativity reverts to the theory from which it was derived: the theory wherein light propagates in a static medium and where Fitzgerald contraction of solid matter is physically real and theoretically detectable.

If, as **Bertram [3]** states, one considers that the forces between a moving charge and its target are developed as elementary forces at each point in both charge fields then the result leads to the Lorentz Transform. The elementary forces propagate outwards in both fields at the speed of light relative to their centers. The derivation suggests that when a charge approaches a target, its surrogate that is formed in the target's field by the sum of a set of these elementary forces, is observed, not the charge itself. The surrogate grows faster than the charge moves, thereby explaining the increase in the charge's momentum over its Newtonian value; the charge's mass doesn't change. The fast moving charge's time doesn't slow down – it just seems to because the target senses the surrogate coming out of the field so it is sensed as it was at an earlier time.

Munch [47] listed the following resulting flaws in SRT from inadequate control of assumptions:

- Lorentz and Einstein inadvertently attributed the variability of an observed light path over some fixed length to the fixed length itself. That fixed length does NOT vary with observed velocity; it's the observed light path length which DOES vary per Lorentz-type transformations. This critical error, which is irrefutably shown in parts of Einstein's own 1905 text (copy included in an appendix to the paper) led to other critical errors in Special Relativity. It's the light path length which varies and that has no discernable influence on mass.
- Einstein also assumed that the elapsed time of that observed light travel varies; it does not, as explained here. So, there never has been a "twin paradox".
- Minkowski based his "Space-time" on assumptions that zero can equal one. Also that light can arrive before it leaves. Both are incorrect and hence his space-time concepts can also be rejected.
- Michelson-Morley's experimental equipment was unable to recognize variability of observed c' because round-trip travel of light beams obscured the measurement of comparative light speeds.

One simple method for improving assumption controls is suggested.

The speed of light was the mortar that held together the 20th century physics paradigm, which we have inherited in the 21st century. According to **Heaston [30]** many different functions of physics use the speed of light as proportionality constants, a necessary component, or a limiting condition. Examples abound: special relativity, general relativity, mass-energy equivalence, fine structure constant, Rydberg number, Stefan-Boltzmann constant, uncertainty principle, electromagnetic spectrum, Maxwell equations, Compton wavelength, properties of free space, Planck scale and many others. The objective of this paper is to show how much of physics is dependent upon the speed of light and to indicate how disastrous the consequences would be if the speed of light were not constant.

The discussion whether the speed of light is absolute or relative started a long time ago. To date it has continued under the silent assumption that light has only one speed. Validity of such an assumption is questioned by **Laski [41]** from Poland. Should light be considered as a wave then the second Einstein postulate would automatically be given by the Doppler formula whether corrected for relativity or not. Light considered as a wave would have at least two speeds: the absolute phase speed and the relative speed of the wave front. Particles (photons) do not have two different speeds but the waves do. Instead of considering the light as photons and introducing the second Einstein postulate, we propose to accept the idea of particle-wave duality of light. In the case of waves it would automatically assure the existence of the absolute phase speed and would provide the relative speed of the light wave front. It is argued that introducing corrections for relativity into the Doppler formula for electromagnetic waves requires a correction of the Doppler formula for elastic waves. Otherwise the first Einstein postulate is violated.

Persson [60] from Sweden believes that wrong interpretations of three important physical observations are the fundamental reasons behind the absurd special theory of relativity (SRT). The three wrong interpretations are because SRT was tailored to explain the nonexistent Michelson effect, had trouble with the Bradley effect, and had no explanation at all for the Sagnac effect. From 1905 SRT has dominated theoretical physics for almost a hundred years, without having had much impact on practical physics.

In his three papers, Savakar from India uses an approach of raising scientific issues through historical and fictional characters involved in melodramatic interactions. Buried within this approach are some interesting mathematical issues and paradoxes. The key to his reasoning is that he often uses a reference frame at absolute rest. As **Savakar [68]** states about following in the footsteps of Newton in the author's science-play *The Catherine Conspiracy* or *The Honest Relativity*, it is seen that, apart from a single constant required to be fixed from empirical experience, Lorentz's length-contraction and clock-retardation postulates follow deductively and uniquely from the single Postulate of "Relativity" alone. Newton's path to the Gulliveresque relativity for inertial motion, involving only the shooting of revolving shells, shows, from simple readily visualizable experiments and elementary considerations, the necessity of a "velocity-twist effect" that is scarcely known. **Savakar [69]** describes a method for calibrating frames of reference by means of revolving shells, wherein the synchronization of separated clocks is effected without sending any signals or transporting any clocks. The method leads to the same correlations between the rest-frame and a moving frame as those given by the Lorentz-Transformations.

Electromagnetism. Electromagnetism contributes more to modern technological society than any other discipline. Pull a plug or let a battery, alternator or generator go dead and see what happens. The subject is mentioned in most of the 88 papers, but only five papers give electromagnetism special attention. Many famous names are mentioned in these five papers: Ampere, Coulomb, Einstein, Gauss, Heaviside, Landau, Lienard, Lifshitz, Lorentz, Minkowski, Maxwell, Wiechert. There is still something to be learned about electromagnetism. An effort has been on-going for three years on how to model charge clusters on a spinning charged ring. Electrical and magnetic fields were studied to determine how forces on a ring could be unbalanced so as to propel the ring. Three different relativity theories were evaluated in terms of observer-dependence of electric and magnetic fields. Five apparently disparate discoveries within electromagnetism and other subjects are brought together in a coherent context. An analysis was performed on how very high energy current densities could be created using a DC source.

Spencer, Shama, Mascardo and Mann [77] develop and analyze the stability conditions for a spinning charged ring using two ways. One approach uses Maxwell's electromagnetic theory and the other applies the new Gaussian electromagnetic theory. Conclusions are drawn as to whether a charge cluster can be modeled by a spinning charged ring according to either electromagnetic theory for particles with any ratio of mass to electric charge. One of the findings is that the equations based upon Maxwell's theory cannot be in equilibrium because the force would be zero. The new Gaussian approach also runs into troubles because no absolute velocity can be determined. In addition, infinities are encountered. A further challenge results in a question: What are charge clusters?

A single circular loop conductor [ring] with its current induces a magnetic field, not only surrounding the ring but also within the substance of the ring. Subsequently, as **Warfield [84]** observes, that portion of the magnetic field, which is located within the body of the ring, interacts with its own current to produce Lorentz forces. These electromagnetic propulsive forces are either blocked by the intact structure of the ring, or they are symmetrically oriented in opposing directions thus counteracting each other. However, if a directed magnetic pulse distorts the magnetic field relative to one side of the plane of the ring, then for the duration of this pulse, there will be within the ring some Lorentz forces that

are not blocked by opposing symmetrical forces. Accordingly, these forces are unbalanced which results in electromagnetic propulsion of the ring along its axis.

Since Heaviside the interpretation of electric and magnetic fields have become observer-dependent. Einstein in 1905 using the Lorentz group deduced the same observer-dependence as Heaviside did 17-years before. Minkowski in 1908 derived another expression for the observer-dependence of the electric and magnetic fields. Well known textbooks, like Jackson, and Landau and Lifshitz, have more recently presented an observer-dependence that is distinct from Minkowski. Since 2001 Ivezic has observed the presence of illogical mathematical reasoning in textbooks, where the group-covariance is interpreted not as proposed originally by Minkowski in 1908. In this paper **Oziewicz [57]** from Mexico compares three different relativity theories in terms of the observer-dependence of the electric and magnetic fields.

In this paper **Jonson [34]** of Sweden reveals how five apparently disparate discoveries within electromagnetism and related subjects are brought together into a coherent context. The first and most crucial issue is that the Liénard-Wiechert potential functions that were used to derive the electromagnetic fields used today were themselves fallaciously derived. The issue is crucial, since if the potentials are false, the rest of the electromagnetic theory must accordingly be rejected. The second issue concerns Ampere's bridge, which refutes the Lorentz force and simultaneously gives credit to Coulomb's law. A third issue concerns electromagnetic induction that can be explained using Coulomb's law instead of the "induction law." The fourth issue is that of photons. Using again Coulomb's law, it is possible to classically explain "the wave-particle" paradox. A fifth issue is gravity, which is explainable as an electromagnetic effect. The overall intent is to gain momentum for a new electromagnetic field theory, based upon Coulomb's original force law of 1785. A mathematical proof has been made elsewhere predicting the appearance of infinite current densities in the vicinity of idealized DC generator poles with a vanishing linear extension. The discovery was made, as a complete DC circuit was being analyzed mathematically as a part of the analysis of experimental results with Ampére's bridge in the 1980s. It seems necessary to emphasize this discovery again through a special paper, focusing solely upon the analysis of a DC source**.** **Jonson [35]** has proposed that research on cold fusion and other topics would benefit from the discovery, as very high energy densities will be needed in order to achieve fusion, and this will happen in an electric circuit, too, provided the current density is high enough.

Quantum Mechanics. Two great advancements in physics dominated the 20th century: relativity and quantum theories. They developed along parallel paths. Relativity was a follow-on to classical mechanics, the macroscopic world and analog processes. Quantum theory was a new addition to science with the creation of quantum mechanics, the microscopic world and discrete quantized units that have exploded into a digitized reality. The cross-over between the quantum and the relativity domains is by way of wave-particle duality. This is a growth area for the *Natural Philosophy Alliance* since the major focus in past years has been on relativity-related physics. This section was divided into two parts during the 15th NPA Conference: "Particles and Quantum Mechanics" and "Waves and Quantum Mechanics". Both sections have been combined here for two reasons; there were only 15 papers that were on quantum mechanics and it was often not possible to tell whether waves or particles were emphasized. Since the *15th NPA Conference* coincided closely with the 150th anniversary of the birth of Planck on 23 April 2008, it was appropriate to review the role of the Planck constant, the "quantum of action" that started the quantum revolution. Progress has been made on the development of a new type of holor called a twinor that explains photon entanglement. The integer and the fractional multipliers of the quantum Hall effect were evaluated. Different statistical interactions of fermions and bosons were analyzed. Electrons may be portrayed with a dual spin. A cogent argument is presented that the Einstein-Podolsky-Rosen experiment exhibits locality and realism. A matrix structure of the vacuum is suggested. The general characteristics of wave motion are described. The characteristics of the overall electromagnetic spectrum are analyzed and defined in terms of rays and beams. Newton, Galileo and Bohr models are used to discuss the various wavelengths of the electromagnetic spectrum. Maxima in radiation are described and interpreted. Wave motion is explained by introducing a dipole-field geometry for the photon. Quantum variables do not commute because the initial state of a quantum system is indeterminate. Quantum mechanics can be accounted for if it describes the interaction of three vector fields. The energy relationships of an object moving within a volume that is moving within a volume that is moving within another and so forth are analyzed.

Max Planck's 150th anniversary, 23 April 2008, is a welcome opportunity to devote some thoughts to the history and the role of his "quantum of action", *h*, which he hesitatingly established in 1900. The occurrences of the so-called Planck constant appear ubiquitous in physics ranging from the radiation law (the "cradle of quantum physics") and Planck's units to some aspects of nanotechnology. Quantization is considered a first-rate revolution in physics, but is there really a continental divide between "classical" and "post-classical" physics? Giving preference to mathematical reasoning à la Heisenberg, 20th century physics arrived at questionable conclusions in spite of numerically correct results. In a sense, **Marquardt [44]** from Germany states, "There was no quantum revolution." Some unorthodox views are in order to give *h* back to physics. What is quan-

tized? Obviously it is not energy, but action. What possibly links the two ingredients of action together? Why should there be a quantum at all? It might be due to some stability criterion and a compromise between two counteracting variables. What is the interplay of the variables that occur in formulas containing *h*? The "constant of least action" may still be good for some surprises.

In order to mathematically describe the astonishing phenomenon of photon entanglement **Spencer and Kamanov [78]** introduced a new type of mathematical function called a *holor*. If a beam of light is incident on a barium borate crystal the incident light breaks into a pair of twin beams which make equal but opposite angles with the normal direction to the surface of the crystal. In order to represent this extraordinary behavior it is necessary to introduce a holor, which they call a *bivalent twinor*. Mathematical components of this twinor that have been developed to date are discussed.

Post [63] discusses aspects of the *quantum Hall effect,* which is a phenomena exhibited by certain semiconductor devices at low temperatures and high magnetic fields, whereby the Hall resistance becomes precisely equal to an integer or rational fraction of the Planck constant divided by electric charge. The vast majority of attempts at describing how two quantum Hall effects fit existing theory started out by viewing the phenomena in a Copenhagen-Schrödinger perspective. In the course of time, extraneous adaptations had to be made ranging from fractional charge, composite fermions all the way to a Chern-Simmons 3-forms invoking strings. Yet this step of entering the field now reveals a structural topology not conveyable by statistical Schrödinger methods. Ironically, the 1- and 2-form components of a physical 3-form used by Kiehn unify integer and fractional effects. The second paper by **Post [64]** discusses a comparison and contrast of different statistics applied to different phenomena. The pre-statistical processes of Aharonov-Bohm and Gauss-Ampère (relate to fermions/electrons) have been extended by Kiehn into a de Rham cohomology, applying to single systems. Metric independence secures macro and micro applicability. The pre-1925 quantum methods are recast into probes of single system topological structure. Unlike the deep-freeze non-classical statistics, classical statistics permits disorder-order transitions e.g., Bose-Einstein condensation (relates to bosons). These transitions help in understanding a range of related phenomena. The psi function becomes a correlation statistics describing mutual phase and orientation behavior in the ensemble; this replaces the current Copenhagen's probability density of presence.

Emery [18] says that the awkward spin of an electron escapes rational understanding. But by principles from his previous study (published in the **Proceedings of the Natural Philosophy Alliance** in 2006), the spin is portrayed as a dual spin—with one spin perpendicular to the other. A dual spin as such serves to explain the emission of photons, along with their wave-like pattern, and the speed limit c. Planck's radiation law and the photoelectric effect are also discussed.

The Einstein-Podolsky-Rosen (EPR) experiment is based upon a thought experiment that was introduced to argue that quantum mechanics is not a complete theory. **Lan [40]** from Malaysia describes a specific EPR experiment in detail in his paper. In the EPR experiment, a source produces a system of particles that fly apart in opposite directions, each towards a Stern-Gerlach magnet. According to orthodox interpretation of the experiment, the system of two particles does not have any definite spin state before measurement. Measurement on one particle compels that particle to have a definite spin state and instantaneously "triggers" the other particle, which is spatially separated from the first, to also acquire a definite spin state. This instantaneous *action-at-a-distance* is what is meant by non-locality. However, if the pre-existing spin states correspond to magnet settings, the realistic meaning of the EPR experiment is *local*—local means no action-at-a-distance. Lan presents a cogent argument that locality and realism can coexist, contrary to the belief extolled by quantum mechanics.

A brief review of "Rhysmonic Cosmology" is provided by **Ramsay [65];** more descriptive information is available on the internet. Basic concepts were built upon a substratum of particles called "rhysmons" which have only size, shape, position and structure. The word "rhysmon" stems from the Greek word designating atom, "rhysmos", which means *evermoving*. Rhysmons provide the elementary quantum of action, and in turn, intertwine in a matrix structure to form the vacuum. That structure is said to explain forces or fields, particles or mass, charge, and other phenomena such as the constant velocity of light, superluminal motion and galaxy formations. Some simple tests are suggested.

Oldani presents three papers all closely related to particles and quantum mechanics. The field diagram for an electromagnetic wave shows that electric and magnetic field vectors violate Gauss laws. In his first paper, **Oldani [54]** corrects this and wave motion is explained by introducing a dipole-field geometry for the photon. The dual wave-particle nature of photons is also accounted for by means of classical fields and vector addition. The allure of quantum mechanics lies in its mysteries and the exotic possibilities they introduce, such as worm holes, parallel Universes, and teleportation. In his second paper**, Oldani [55]** shows that some quantum mysteries are illusions. The mystique disappears when experiments are described in strict detail with classical fields and straightforward causal arguments. Quantum physics is shown to be accessible to everyone, not just mathematicians. It is shown that quantum variables do not commute because the initial state of a quantum system is indeterminate. According to **Oldani [56]** in his third paper, the strange mathematics of quantum mechanics can be accounted for if it describes the interaction of three vector fields corresponding to the nucleus, electron, and photon. A state vector is formed as the combination of two of the three vector fields. This yields an infinite number of possible solutions, the probability amplitudes. The remaining vector field, or operator, is then applied to the state vector to obtain an infinite number of possible values for the physical variable, the eigenvalues. Com-

bining the vector fields in a different order yields two distinct, but mathematically equivalent solutions, matrix mechanics and wave mechanics, as was done by Heisenberg and Schrödinger, respectively.

Kerr [37] reviewed the mechanics of wave action, which can only occur in a medium. A wave transmits mass impulse energy by a sequence of compressions in the direction of emission. Although frequency is proportional to wave particle energy all of the constituent particles have the same transmission velocity. The only explanation of the simultaneous conduct of different velocity particles is equal resistance of a medium of like particles. The collapse of the transverse media expansion elastically transfers the impulse energy to the resistant media particles. The resisting media particles repeat the cycle in the initial direction of emission. The resistance of the medium is proportional to volumetric particle density. Increased density decreases mean free path of the wave particle. Mean free path in a given medium establishes the propagation velocity. Electromagnetic waves are transmitted by overtly undetectable particles. The greater size and mass of atmospheric particles limit them to sonic velocity. Atmospheric pressure is proportional to temperature, which defines atmospheric particulate density at a given pressure level. Temperature correlates with the kinetic theory of gases, the second law of thermodynamics and equally quantifies the pressure of an omnipresent wave energy-transmitting medium.

Munch [48] assumed, similar to the Bohr model that incoming energy is received by an atom and then emitted as a photon each time its received energy has increased by a discrete amount. If wavelength is the distance between emitted photons, as assumed by Planck (when c is constant), the enormous range of wavelengths in the electromagnetic spectrum is readily achieved. Sequential emission of photons from a single atom is called an "emission ray". A group of those rays, traveling together, is called an "emission beam", which can be seen and measured. A beam's properties may well be the statistical mean of values of its component rays. If correct, the constant speed c of all emissions might be attributed to constant "escape velocity" from the atomic sources, rather than the still-unfound all-pervasive aether. Concepts by Galileo, Ritz and Doppler still apply for an observer moving relative to the emission's source. The enormous energies of the minuscule wavelength gamma rays are easily explained by the inverse energy-wavelength relationships in this concept. Also, if a photon is a spherical cloud of energy particles, it would pass any point in some sort of an energy wave profile and references to "duality concepts" in quantum mechanics may not be needed. Discussion of the electromagnetic spectrum continues. **Munch [49]** first considers the nature of white light, per Newton's observations with prisms and the resulting spectra. The enormous number of colors and independence of colored light rays becomes obvious. Using Galilean concepts, the large required range of wavelengths might be by met by large velocity variations within the materials surrounding the atoms emitting those light rays. The Galilean concepts may be correct, but these do not apply over the entire electromagnetic spectrum. A better and simpler solution for variations in wavelengths over the 16 orders of magnitude is more easily explained with the Bohr Model of quantum mechanics by defining Bohr's wavelength in the emitted photon energy term as between emitted photons. Emissions from the atoms are neither "discrete wave-lengths nor frequencies", or wavelengths within the photons. A better concept might be that the discrete photons are separated by the discrete wavelengths. If correct, this may provide a better understanding of light as well as the other emissions in the full electromagnetic spectrum spectrum.

The Universe has several maxima of radiation. The largest maximum, which is called the 'relic maximum', arises from the process of hydrogen atom fusion at the start of the Universe. The smallest maxima, being called the infrared radiation sources, are formed by the processes of hydrogen molecule fusion in the vicinity of the stars, and their liquefaction in the Universe. **Kanarev [36]** from Russia reports on his interpretation of these various maxima in radiation.

Savakar [70] from India examines the energy relationships of an object moving within a volume that is moving within another volume that is moving within another, and so forth. The Law of Power is formally unexceptionable, but has an apparently bizarre consequence, requiring perpetual energy flows associated with the internal forces in an inertial equilibrium system - as revealed to Halley and termed the "Halley-power-flows" here - even when the force is not transparently overcoming any resistance and nor is the state of uniform motion of the body upon which it acts changed by the action of the force.

Aether. Newton introduced the world to the issue of action-at-a-distance in the 1680s. Two centuries later in the 1870s, Maxwell defined an aether (preferred spelling) that filled all of "free" space and acted as a medium for the transmission of electromagnetic waves. Only a few decades passed until the early 1900s when Einstein abolished the aether with relativity and defined gravity as the curvature of spacetime. By the 1980s, the current physics paradigm created a pseudo-aether, called the *vacuum*, that was filled with virtual energy, virtual particles, a zero-point force, and a refuge of the cosmological constant, dark energy, and dark matter. No wonder that 17 authors from around the world stepped forward to recognize an aether-filled universe. The aether is a logical necessity of the Maxwell equations. Space must be an invisible ethereal fluid. Space-time is stochastic and it can be regarded as matter-aether. Mach's principle is a signature of an omnipresent aether. A test of aether based upon the measurement of the resonance frequency of a microwave resonator was suggested. A number of models were put forward: (1) a comprehensive aether mass, aether ratio and a two-mass body aether model; (2) a minimum contradictions model; (3) an aether traction-compression model; (4) an aether model that explains why some volume ratios, in simple geometric patterns, are nearly equal to some important particle mass ratios in physics; (5) a hydrodynamic aether model; (6) a starlight aberration aether-entrainment model; (7) a Sagnac effect and aether model relationship; (8)

a unified SRT/inflowing space model; and (9) a stellar air and liquid light model. After all, Einstein may have reverted to recognizing an aether in the 1920s, but friends persuaded him not to change his stance.

The postulates of both special relativity and the Lorentz ether theory could easily be tested via measurement of the resonance frequency of a microwave resonator, as it strongly depends on the phase velocities of the waves traveling back and forth. **Thim [80]** from Austria suggests that a successful method might be to connect a resonator to an active element such as a bipolar transistor and build a solid-state oscillator. The frequency of operation can easily be calculated. A series of experiments with different solid-state oscillator circuits could be performed in order to measure the actual ticking rate of clocks (oscillators) at rest or in motion relative to the aether, to the cosmic microwave background (Smoot's New Aether) or relative to whatever. If two different oscillator circuits were operated in a common laboratory on earth during a 12 hours period of time (half a revolution of the earth), different frequency readings would be observed after they had initially been tuned to the same frequency. This would indicate that the Lorentz aether theory is correct whereas equal frequency readings would indicate that special relativity is applicable. Experimental results obtained with several different oscillators and theoretical aspects of this method are discussed.

The paper by **Fernandes [22]** from India was the first live two-way video presentation at a *Natural Philosophy Alliance Conference*. He spoke from India to an audience in Albuquerque, NM in the USA. His paper has eight parts and contains 31 pages. He begins by reconciling the physical quantities of gravitational mass and electrical charge. The mass when the Newton gravitational force overlays the electromagnetic force is called the a*ether mass* and leads to the a*ether ratio*, a *two-mass body* and the a*ether model*. These building blocks are used to analyze the fine structure constant, the classical radius, the Bohr atom and the structure of the Hydrogen atom. The true corpuscular or photon nature of a Hydrogen atom and a proton is conclusively evinced in this paper. The ionization energy of a Hydrogen atom is observed due to pair production. In reality fusion of a *Rydberg photon* (key building block) with the ionization introduced photon mass produces an electron-positron pair. Pair production substantiates the absence of an electron in the ground state of a Hydrogen atom.

The original formulation of Faraday's Law (the motivation of an electric current in a conductor about a region of expanding magnetic flux), and its well-known expression in Maxwell's fourth equation (the generation of an actual electric field circulation about such a region of magnetic flux change) are examined in the context of energy and angular momentum conservation. **Wells [86]** shows that these formulations, especially Maxwell's equation, directly violate both conservation laws: the First Law of Thermodynamics and the Third Law of Motion. Several idealized descriptive arrangements of experimental apparatus are employed in demonstrating the persistent fallacies in the conceptions of electromagnetic relations from the very outset of their theoretical development: various systems of free charges, co-axial coils and rotating charged wheels display specific (though unintentional) conflicts with basic laws of mechanics—evidence of "constructive fraud"— and point to the need for a thorough re-evaluation of the premises of electrodynamics. Several possible directions toward reformulation are briefly critiqued; more studied attention is then devoted to an Aether Traction-Compression Hypothesis to resolve the issues.

In 1918 and 1920 Einstein declared that the aether could certainly play a role in General Relativity Theory (GRT) and would not need to be excluded from Special Relativity Theory (SRT). He thus left the door open for the insertion of aether concepts in both the gravitational case of dense matter and strong gravitational fields and the case of comparatively field-free regions of interstellar and intergalactic space. **Morton [45]** describes the essence of the aether and explains why the aether as described is a logical necessity. Although he gives many arguments for the aether and defines a number of characteristics of the aether, his primary argument relates to the Maxwell equations. These equations require the aether if there is to be a displacement current in the vacuum. The so-called "sick man of physics" may recover after all. **Kerr [38]** argues that the emission and travel of light and all electromagnetic phenomena can only be explained by fluid behavior. Individual radiated frequencies are transmitted at the same velocity. Radiation frequencies are proportional to energy level. The only conceivable mechanical explanation is wave action. Wave action results from the limit of media resistance. Media particle resistance is equal to emitted particle energy. Visual imagery proves that all light particles travel the same distance per unit time. The only known mechanical equivalent methodology is an audio wave. Distance traveled per unit time is the mean free path. Mean free path is inversely proportional to frequency. It defines the wavelength of the wave that is established by an emitted particle. There is no other conceivable explanation of electromagnetic behavior consistent with the data. Space must be an invisible fluid—an aethereal fluid.

According to a rather complex minimum contradictions point of view put forward by **Nassikas [53]** from Greece, space-time is stochastic and it can be regarded as matter–aether. However, matter can be either mass or charge. Thus, there exist both mass-gravitational (g) space-time and charge-electromagnetic (em) space-time. The (em) space-time behaves as a (g) space-time one, since both are space-time and obey the same principles but it is not. Thus, any time interval in the (em) space-time is incomprehensible with respect to a coexisting (g) space-time one and it can be regarded as an imaginary number, which is incomprehensible too. According to the minimum contradictions point of view, the energy of an infinitesimal (em) space-time can be regarded as imaginary since it is equivalent to an (em) time interval. Therefore, in general, the electromagnetic energy and in extension (em) magnitudes can be regarded as imaginary. The electromagnetic space-time can be regarded as a four dimensional space-time which coexists with the gravita-

tional one. Taking into account the existence of negative physical and geometrical magnitudes, according to the minimum contradictions point of view, we may assume that there exists also an anti-em space-time that corresponds to antimatter. Thus, space-time as a whole is described through sixteen dimensions, i.e. four dimensions for each of the following space-times: (g), (anti-g), (em) and (anti-em). This does not mean that space-time has 16 dimensions; simply it is described through 16 dimensions. In reality space-time is fractally described through four dimensions. It is noted that there is a coexistence scale between (g) and (em) space-time and that the probability density function, according to the spirit of this work, can take either positive or negative values.

Although relativity - one of the most driving paradigms of contemporary physics - works efficiently in most cases, there is one coincidence which cannot be explained by it. Physicists have observed that the local inertial compass, as represented by Foucault's pendulum, coincides with the frame of the most distant galaxies and quasars within the present measurement accuracy of *2.5 x 10E-4* arcsec/year. In modern physics Mach's Principle is the hypothesis most favored to explain this fact. As Mach's Principle implies that not only gravity but all physics can be formulated without any reference to an all-pervasive background like an aether, it is physically considered as the climax of relativity. But Mach's Principle has never been formulated in a precise way so that the above-mentioned coincidence is still unexplained. Still it is not yet epistemologically recognized as an anomaly that breaks the relativistic paradigm. **Hansen [25]** from Germany presents an argument that could change the epistemological status of this fact as the "signature" of an omnipresent and invisible aether.

The presumed mathematical validity of the Einstein and Lorentz transformation equations has been mathematically challenged based on computer science namespace analysis and on apparent violations of the rules of algebraic substitution. In addition, the Einstein-Lorentz Special Relativity equations do not properly incorporate frequency into the derivation because they overlook its bi-directional nature and do not account for the superposition-of-waves principle. Both Einstein and Lorentz use their equations to transform points instead of lengths. **Bryant [9]** introduces a revised set of length-based transformation equations, addresses the bi-directional nature of frequency, and adheres to the superposition of waves principles. The model of Complete and Incomplete Coordinate Systems is a wave medium (aether) based model that is generalized to apply to oscillating phenomena and moving systems, does not suffer from the same mathematical problems as the Einstein-Lorentz derivations, and uses equations that yield equal or better results than the existing Einstein-Lorentz equations.

Some volume ratios, in simple geometric patterns, are nearly equal to some important particle mass ratios in physics -- such as the proton to electron mass ratio**. Littmann [42]** wrote about these ratios in a widely read journal in 1995. However, no reason could be given why such correlations arise. Unless the correlations are merely coincidental, an explanation is desirable. It is suggested that low density aether vortices or spheres in space having a Planck's quantum of angular momentum; maximum nuclear densities (as in Bohr's liquid-drop model); some aether-related speed-of-light limitations imposed on nuclear densities; and those small and large aether balls in space containing small and large energies, respectively. Those aethereal spheres are determined by what fits into neat, close-packed sphere patterns in space, and they share some energies and angular momentum with gross particles.

Shifman [74] begins with a quote from Dyson, "For any speculation which does not at first glance appear crazy, there is no hope." We must discard the idea of an invisible "field" that causes gravitation and develop in its place the concept of a direct mechanical effect produced by a hydrodynamic aether. The key intellectual shift involves understanding that the omnipresent aether manifests equally well as open space or as material bodies. Thus objects cease to be separate entities and become local manifestations of the aether. The universal aetheric context is always in motion and has a velocity gradient at every point. It is the direction and magnitude of the aetheric velocity gradient that determines the direction and strength of gravitational effects.

The more than hundred year's old conflict between Michelson's results and his prediction is analyzed and explained by **Persson [58]** from Sweden in four short papers. Michelson predicted that a second order effect of an aether-wind at least equal to our planet's velocity in relation to the centre of our planetary system should be detectable. This means an effect in two-way propagation time of at least equal to 10E-8 of c. The result is instead an observed effect less than 10E-14 of c, according to Antonini and others. A new interpretation of starlight aberration is described by **Persson [59].** Aberration is united with entrained aether, as well as with absolute aether. It is also explained how stability in planetary orbits can be united with a reasonable speed of gravity. Aberration of starlight was discovered by Bradley in 1728, united with entrained aether by Stokes in 1845, and demonstrated to be in conflict with entrained aether by Challis in 1880, all reported by Schaffner in **Nineteenth-Century Aether Theories**. Since then scientists have tried in vain to unite entrainment and aberration. The conflict between a reasonable speed of gravity and stability in planetary orbits is of a more recent date. Evidence for the aether's existence and state of motion are explained by **Persson [61].** Methods for finding more knowledge about the aether are explained. The almost hundred years old conflict between special relativity theory (SRT) and the Sagnac effect is analyzed. The common interpretation of the Sagnac effect as an effect of rotation is refuted by **Persson [62].** The relation between the Sagnac effect and an aether model is discussed.

Warfield [82] hypothesizes in a two-part paper a non-mathematical special relativity theory based upon a Higgs field or ocean. This field combines with an *Inflowing Space Model* analogous to general relativity theory by means of three-dimensional spatial visualization. This combination is consistent with the majority of the classical concepts and

observations that are typically associated with Einstein's theories, but simpler than Einstein. The major exceptions being that the preferred frame for the speed of light located far from any of the large masses of the universe is identical to the isotropy of the microwave background radiation, and the preferred frame for the local speed of light on the Earth's surface is equivalent to the Earth-Centered Non-Rotating Inertial Frame/Earth's gravitational field. **Warfield's [83]** intent of Part 2 of his paper is to use his unified SRT/Inflowing Space model to explain known observations and other assumed hypothetical consequences typically associated with Einstein's Relativity. Some of the topics explained are: aether drag/entrainment, gravitational lens effect, the speed of light at the Earth's surface, stellar aberration, the red shift of galactic jets or quasars, and other phenomena.

Hohenberger [33] gave a metaphysical description of the aether that he called the *stellar air*. The Universe is neither empty nor void, but is instead filled with a single universal substance, the stellar air in which electromagnetic waves oscillate. Gamma rays are high frequency electromagnetic waves that compress the stellar air into quarks of liquid light at the resonant frequency of the stellar air within the Universe. Stellar air and liquid light are methods for describing pure energy. The stellar air flows through our bodies and into the Earth, causing our sense of weight and then turns into mass or liquid light, through the process of nuclear fusion and causes the Earth to grow and to expand. The physics of four-dimensional space and time and the color psychosomatics of the human mind can all be integrated into a single whole through the philosophy of science.

Cosmology: In the program of the *15th NPA Conference*, this section was listed as "Gravity, Galaxies, Stars and Planets" so that participants would know what specific topics were of interest. The more expansive title is used here because it is shorter and all 13 papers address cosmological interests. We begin with a paper that presents arguments on how all natural forces, including gravity, can be reduced to a single force. Subsequently three papers about specific astronomical events appear. After that there is a series of papers starting with an overview of 20th century cosmology, a paper that focuses on the flaws in big bang theory, and. that brings us to three papers on the LB/FLINE model of the origins of our solar system and the relationships that apply across the universe. The last four papers discuss the strong evidence that the Earth and other objects in space are growing, with particular suggestions on how spiral galaxies grow.

The basic assumption by **Arneth [1]** from Germany is that all natural forces can be reduced to a single force. Coulomb's Law and the Law of Gravity are combined into a single law having the form of a mass-charge force. This newly formulated mass-charge force is thought to be the force that counteracts Coulomb's repulsion to hold together the nucleons in an atomic nucleus. As a result the nuclear force is also unified. Such a unification of physics only makes sense if gravitational and inertial masses are different: inertial mass increases with speed, whereas gravitational mass remains constant. One can easily subsume mass and charge into a complex quantity. The result is a single law. When gravity is being considered, the charge of the body observed is zero and the Law of Gravity results. If the charge on the body being observed is not zero, then the result is essentially Coulomb's Law.

Sven [79] spoke about how the findings of modern technology as published by NASA, Stanford Labs, SDSS, Super Kamiokande Studies, and 2dF along with other equivalent research, easily refute the early uncritical observations and assumptions used to imperfectly describe 20th century cosmology, assumptions that persist with such tenacity that many believe they are fact, including a Hindu myth. The foundations of 20th century cosmology as contributed by de Sitter, Lemaître, Friedmann and Milne are noted, dated, documented, and then refuted, negated, and countered with specific above noted modern observations. Sven's basic approach is to search all over the Internet to find authoritative comments on current technical issues. Check out his details at http://www.allnewuniverse.com .

Supernova 2006gy, reputed by **Fritzius [23]** and others to be the "brightest stellar explosion ever recorded," is generally considered to be associated with spiral galaxy NGC 1260, some 240 million light years from the solar system. On the other hand, three astrometrically determined positions for the supernova are radically inconsistent with the calculated distance to the spiral galaxy. Walter Ritz's (1908) ballistic emission theory (which predicts apparent time modulation for close binary stars) as modified by J.G. Fox's (1965) extinction theorem, is used to explain the kinematics of the motion anomalies for the supernova. Ritzian relativity (a major competitor of Einstein's special relativity) predicts that the progenitor of SN 2006gy will eventually be found not to be the death of an extremely massive star but rather a (1913) de Sitter binary star whimsical image, and it will be a nearby neighbor to the solar system.

Deen [11] has been fascinated by Nemesis which many say is a mysterious solar companion star to our Sun. If Nemesis, a hypothetical brown dwarf star, passed through the inner solar system in pre-historic times, it should have disturbed the orbits of the inner planets. If the orbit of Nemesis is inclined by 90 degrees, orbit changes of the planets could have been minimal if they were all on the opposite side of the Sun during the passage unless a substantial mass were transferred from the star to the Sun. In that case orbital elements should have been changed by the sudden increase in the Sun's mass. The new longitudes of their perihelia should have lined up with Nemesis's perihelion at the time of passage, and the inner planets should have all been at their new aphelia at the time of passage. J.L. Simon, et al. (1994), give sixth-order polynomial formulas for the computation of the mean elements of the planets over time. Deen calculates the impact of Nemesis on the alignment of the planets and offers an explanation as to why Mars's major axis is inverted.

Weber [85] hypothesizes that QSO's (quasi stellar objects) are an optical illusion created by three phenomena: by

gravitational lensing of the photons from an opposite jet emanating from a huge mass at the center of an active galaxy the axis of which is oriented toward Earth, by the magnified reflection of ultraviolet and X-rays from a dense plate of ions on the surface of an accretion disk, and by infrared rays emitted from dust and gas further out, the last not magnified as greatly. Some objects are perceived as QSO's because of the emission of rays by atoms or reflected by the ions on the accretion disk. Other QSO's and infrared QSO's are perceived as active galaxies viewed from 90 degrees to the side of the axis.

Van Flandern [81] made history, for the *Natural Philosophy Alliance* by being one of the first live two-way video presentations at an NPA conference. The essence of the Big Bang theory is the origin of space and time in the gigantic explosion of a singularity. The high energy of the initial space spreads, cools, and condenses to become matter. New space continues to be created even today, adding "dark energy" at the ambient temperatures between galaxies. To avoid edge problems, exceeding-the-speed-of-light problems, and fine-tuning problems, an early period of rapid expansion called "inflation" was added to the theory in the 1980's. Over the past two decades, numerous serious problems with the Big Bang theory have arisen. Observational contradictions include the Big Bang's two fundamental pillars: that the cosmological redshift is caused by expansion, and that the cosmic microwave radiation originates from the background, beyond all visible galaxies. The Big Bang theory should be taken off the scientific table to make room for better models. Already-well-discussed replacements are QSSC (quasi-steady-state cosmology), PC (plasma cosmology), VMC (variable-mass cosmology), and MM (meta model).

Due to lack of a viable alternative, the unsubstantiated Big Bang (BB) concept has become well-entrenched in scientific literature**. Scarborough [71]** presents a viable alternative that offers a way out of the maze and offers substantial evidence for definitive solutions to planetary and, eventually, other universal anomalies. Altering the initial stage of the BB via elimination of the impossibility of all universal energy/matter being contained in a very small mass will enable science to get back on the right train of thought. Once past the initial stage of the BB inflation, the LB/FLINE will take control via its processes of creating black spheres of space-time, the densest form of energy, the source of all galaxies, each containing billions of stars embedded in hot gaseous dust-clouds. The smaller stars eventually evolve into planets of various sizes through five readily observable stages of evolution via Internal Nucleosynthesis. The LB/FLINE model is soundly based on the five laws of planetary motion that include the three Kepler laws of planetary motion plus two new valid laws added by Scarborough. Twenty questions about our universe are posed by **Scarborough [72],** and 20 definitive answers are presented by him in accordance with the new LB/FLINE model. Some items discussed include: what we know and don't know, and may never know; the intimate connection between mass-energy equivalence and all universal spheres; and the role of black holes. The conclusion is drawn that the answers can replace many things that are utilized in the Big Bang concept that do not seem to be definitive, provable or believable. **Scarborough [73]** discusses twenty ideas underpinning the revolutionary LB/FLINE concepts that are selected for brief discussion to emphasize their crucial roles in understanding how our Solar System (and all solar systems) form(ed) dynamically, and why they are self-sustaining entities. Ideas include the Five Laws (FL) of Planetary Motion and Internal Nucleosynthesis (IN) that drive all planetary Evolution (E). The new model definitively explains the abiogenic origin, evolution and intimate relationship of the hydrocarbon fuels (gas, oil, coal): ongoing nuclear and chemical processes of Earth's interior. Another highlight of the concept is a scientifically valid explanation of why the Earth is slowly and continuously expanding, and consequently, why species come and go as functions of time.

Few scientists today are aware that the Earth is rapidly growing externally and expanding internally, a fact with long-range implications for the survivability of humans on Earth**. Myers [50]** firmly believes that scientists have been deceived for the past 250 years by Immanuel Kant's nebular hypothesis of the creation of the Earth and the Solar System (1755). This deception creates several problems in science, primarily *plate tectonics theory* and its mechanism of *subduction*. Unfortunately, adoption of subduction by the scientific community to maintain a static Earth diameter by subduction of an equal amount of older seafloor in the Pacific Ocean was one of the most egregious and avoidable errors in the history of science. The Earth is increasing in mass and diameter by daily accretion of meteorites and dust particles from outer space, a slow process called ACCREATION, which means creation by accretion. See www.expanding-earth.org **. David de Hilster [13]** uses a number of diagrams and several references that all lead to the conclusion that 200 million years ago, the earth's continents were all together on a much smaller orb and since then, the earth has been growing significantly. There is strong visual evidence that other bodies in the universe are also growing including other planets and moons. Evidence that the earth has grown comes from geology, paleontology, flora and fauna fossil records, observations using satellites in the Global Positioning System (GPS), and simple physics that clearly show that the earth's diameter and mass have been increasing and continues to do so. The growth rate only averages a half centimeter per year but the effect is sizable over several millennia. The mechanism for this growth is still in doubt but the eventual understanding of this mechanism must necessarily span the subatomic to the macro structures such as galaxies and everything in between.

Myers [52] continues the discussion of the growth of the Earth by accretion of matter, accreation,. The long-running debate about whether the Earth is expanding can finally be terminated. The debate ended with the realization that all of today's oceans are relatively young (less than 250 million years old), although they now cover 71 percent of the planet, and have added 40 percent to its size. This is *prima facie* evidence that the planet was much smaller 250 million

years ago and could not have been created in its present size from a solar cloud of gas and dust about 4.6 billion years ago as postulated by Immanuel Kant in 1755 and now believed and taught by most scientists. This revelation automatically removes the rationale for invention of the false concept of subduction to maintain Earth at its present diameter.

A mechanism is also proposed to explain the growth of galaxies. A paper by **Emery [19]** is based on ideas from a previous study about force-free circular motion, which is defined as the inertial effect of two separate motions, but where one motion carries the other. A body moves in a straight line, but its linear momentum is carried and turned effortlessly by a spin from the body itself. Hence, the body moves about a full circle with each of its own 360° rotations. This principle of force-free circular motion may be used to explain the formation of galaxies. The explosion of a spinning mass often creates a spiral pattern as particles move out and away from the center of rotation. Assume that prior to a huge explosion, the original mass was in the process of inflation. Then the mass exploded. Globules of dust and gas were propelled most abundantly in directions perpendicular to that of inflation. Accordingly the number of stars along the line of inflation is few and far between, and the bars of a spiral galaxy coincide with a direction perpendicular to inflation.

Mathematics. From the beginning, natural philosophy has been based upon mathematical laws. Galileo declared nearly 400 years ago that the "Magnificent book of the universe is written in mathematical language." Einstein, as well as others of the mainstream physics paradigm, overestimated the possibility of understanding nature through mathematics alone. The "If, then" language of both mathematics and the phenomena of nature must be forged together. Eight papers focused on the use of mathematics as a tool to provide new insights on the physics of reality. We were reminded of the mathematical definitions of space and time, of infinitesimals and instants, and of the shape of space and the consciousness of time. Mathematics was used to redefine the concept of force that shows the way to a revised description of the universe based upon the redefinition of the four fundamental forces as force laws. On the one hand, more complex mathematics in the form of four-vectors helps to improve the explanation of electromagnetism. But on the other hand, the number of coordinates used to define Lorentz motion was simplified by reduction to a single frame. Another approach to Einstein-Lorentz transformations successfully adapts namespace analysis from computer science. Visual techniques of displaying topological relationships introduces a unique tool to define particle hierarchy.

Erickson [20] talked about excerpts on space and time from his excellent 2006 book, **Absolute Space, Absolute Time, & Absolute Motion**. A distinction must be made between that which is spatial, such as an object's volume, and that which is spacial, i.e., the space occupied by an object. Space is neither flat nor curved, all possible shapes and sizes can exist within it. Space is three-dimensional only, and consists of infinitesimals. Infinitesimals are points of location, without area, shapeless, indivisible and continuous in all directions. Nothing inconsistent with them, such as a square circle, can exist. There is no microscopic infinity. Knowing that infinitesimals exist provides the answer to the mystery of irrational numbers, asymptotes, "infinite series," and much else**. Erickson's [21]** second talk was about time. Time does not move or flow. Neither is it a fourth dimension. It is completely independent of space, though both necessarily exist. It consists of infinitesimals, the instants. Each instant is discrete; it is here, then no more. Yet, it is continuous; there is no time that is not a time. Our consciousness of time does not come from the senses, but from memory. It is an innate idea.

During the latter half of the 20th century scientists agreed that all phenomena could be explained by four fundamental forces, the gravitational, electromagnetic, weak and strong forces. Extensive efforts to unify these forces also agreed that the four forces converged on a superforce at the Planck scale. These attempts at unification, particularly quantum field theory, the standard model and string theory, failed because they were flawed by a series of anomalies. Consequently, the four fundamental forces have all been redefined by **Heaston [29]** as force laws: Newton gravitational force, Coulomb electromagnetic force, Planck quantum force and Einstein strong force. These four forces, referred to as *the Heaston equations*, may be derived in five different ways and result in several predictions and suggested experiments that provide a foundation for a 21st century physics paradigm.

A new mathematical structure intended to formalize the classical 3D and 4D vectors is described by **Saa [67]** from Ecuador. This structure is evidenced to be more appropriate, for its use in physics and the sciences in general, than any of the other mathematical structures of geometric origin, such as the Hamilton (or Pauli or Dirac) quaternions, tensors, geometric algebra (GA) and space-time algebra (STA). The application of four-vectors in electromagnetism is demonstrated, where current concepts are reproduced, in some cases, corrected, in other cases, and new concepts are discovered. Several other physical variables are proved to satisfy the wave equation, which gives a strong argument to conclude that our universe is of electromagnetic constitution. Maxwell's equations are reduced to a four-vector equation. As a by-product, new values and units for the dielectric permittivity and magnetic permeability of vacuum are proposed. Then the electric and magnetic units are expressed only in terms of mechanical units so there is no need for the former.

In the early 1940s, Ricardo Carezani, an engineering student in Argentina, found that more than one frame in the Lorentz derivation of systems in motion was mathematically and physically redundant. Removing the redundant frame and using a single one presents no paradoxes. The new *autodynamics* equations have been subsequently used to improve current mainstream equations such as the Compton effect, to derive Bohr's atom without the need for wave equations, and to describe subatomic interactions without the need for the neutrino. The mathematics behind the redundant frame is shown, the derivation of the new autodynamics

equations, as well as the mismatching exponent form from Einstein's attempt to generate the Lorentz equations from special relativity. A number of examples are presented by **David de Hilster [12]** in a paper that compares approaches with and without the redundant reference frame. For more details see the *Society for the Advancement of Autodynamics* website, http://www. autodynamics.org .

Namespaces are commonly used in Computer Science, and namespace problems are a leading cause of some very difficult to identify programming errors. While namespaces have not been extensively used in mathematics, they can be used to describe the variables, identifiers, and components associated with mathematical functions and matrices**. Bryant [7]** uses namespace analysis to evaluate multiple derivations of the Einstein-Lorentz transformation equations, revealing mathematical problems in each. In his 1905 paper, Einstein overloads the "t" variable between his global and function namespaces, while Lorentz, in his 1904 paper, overloads the "x" variable between his function and matrix namespaces. This overloaded variable problem enabled them to each produce incorrect time transformation equations. This finding will require that the Einstein-Lorentz equations be modified and that the continued validity of Special Relativity be reexamined.

Briddell [5] discussed new explorations into how loops of action link and knot to form three-dimensional hierarchies of structure producing a new family of topological form called Field Structure Theory (FST). Mass is represented by loops in structures and twists correspond to energy levels. Structural Skew Topology (SST) predicts the known values of particle mass and organizes loops into a Sierpinski triangle fractal from which mass values can be derived. Particles evolve within the hierarchy but are measured when separated from the hierarchy**. Briddell [6]** continued his discussion of how symbolic loops and twists yield mathematical models of particle masses and energy levels. Action loops at the Planck scale build a Sierpinski triangle fractal from which mass values can be derived. Particle mass values are measured and weighed outside of the natural hierarchy from which they are formed. Mass values inside the hierarchy are determined in terms of loops of action. When hierarchy decay occurs, hierarchy loop numbers are subtracted to obtain mass values for the standalone particles. Without knowing the mass values of the particles in the hierarchy, particle mass values on their own appear unrelated. Inside the hierarchy particles share energy and have greater mass. Outside the hierarchy they cannot sustain the higher energies and decay. The structure of both bosons and fermions are modeled and explained, along with the mechanics of energy exchanges. Energy bosons are twists of the action loops of the field while mass fermions are a count of the action loops (circuits) in the field. Loops are linked to twist in a fixed relationship accounting for the Einstein mass/energy relationship.

General Relativity Theory. General relativity theory (GRT) provides the primary road map of modern cosmology. However, discussions of dark matter, dark energy, multiuniverses, and acceleration of the expansion of the universe raise questions about the current paradigm. In addition the quantum-relativity/gravity issue is still an unresolved problem. Seven papers made statements to add something to the ongoing dialogue. The correlation of Einstein's personal correspondence with his technical publications permits an historical reconstruction of the significance of the equivalence principle in the beginning stages of the derivation of the Einstein field equations of GRT. The Einstein field equations have an alternative solution where matter collapses to energy with a constant gravitation potential of the speed of light squared. Four postulates lead to the derivation of graviton equations, an equation for the universal gravitational constant, and plans for a graviton experiment. A compound model not only explains the perihelion of Mercury but also describes the orbits of the planets from Mercury to Neptune. An intuitive model of a central collective gravitational mass is suggested.

Einstein considered the discovery of the equivalence principle as "die glückichste Gedanke" in his life. An overly simplistic interpretation of the equivalence principle is that "gravitation is acceleration." **Heaston [27]** says that there is much more to this interpretation because six different reasons may be given in answer to why Einstein thought that the discovery of the equivalence principle was the "happiest thought of his life." The equivalence principle: answered a need for the second part of a 1907 yearbook review article; pointed a way to add gravity to special relativity; suggested a beginning step for derivation of general relativity; guaranteed convergence on Newtonian gravitation; resulted in a model of the mass-energy density tensor; and provided an overall template for general relativity. The next paper by **Heaston [26]** would not have been possible without fully understanding the significance of the equivalence principle. John Archibald Wheeler wrote in 1973, "Gravitational collapse is . . . the greatest crisis of physics of all time." Wheeler was referring to the prediction by Einstein that matter ultimately collapses to a singularity and the breakdown of physical laws. Reconstruction of the Einstein derivation of his field equations of general relativity indicates a new interpretation that resolves the gravitational collapse crisis. The collapse of matter under the gravitational force reaches a finite limit that exhibits all the attributes of a phase change where any matter is converted into energy. This phase change is a third alternative to fission and fusion for the conversion of matter to energy. Big bang theory, inflation theory, models of black holes, and string theory are all impacted by resolution of Wheeler's crisis.

Isaac Newton's Law of Universal Gravitation has no mechanism although Newton did propose that gravity could be caused by a particle called the *fluxion*. Einstein proposed that gravity was caused by the bending of space-time but also gives no mechanism. **Robert de Hilster [14]** proposes that there is a particle or a quantum called the graviton that is not an infinitely divisible field as proposed by the equations of Newton and Einstein. Four postulates are proposed that lead to a step-by-step development of the graviton equations. The

equations are not gravity, but represent the attempt to define a force between two objects. The curves for gravitational acceleration are compared using measured data, Newton's equations, and the graviton equations. A comparison by **Robert de Hilster [15]** of a graviton equation to Newton's gravity equation shows that the force curves and gravitational acceleration curves are similar but different. In an attempt to understand how they could be similar, a special case is developed that explains how this was possible. In the process, an equation for the gravitation constant G was developed. These calculations from the graviton equation have shown that G in fact may be a curve and not a constant. However, in extreme cases, the equation for G may be either invalid or not needed at all**.** **Robert de Hilster [16]** also describes an experiment which attempts to prove that the graviton or gravity quantum exists by using the concepts introduced by Argentinean physicist Dr. Ricardo Carezani. The experiment tries to find a difference between Newton's empirical gravity equation and the equation developed for the finite quanta called the graviton. The results of the predictions by the graviton equations explained in the paper above give different results depending on the experimental setup. Several differences in the equations are discussed along with a general discussion of possible experimental setups.

The basic problem of the rotation of the perihelion of Mercury was considered by **Smulsky [75]** from Russia. He approached the problem this way. A homogeneous rotating sphere and the same non-rotating sphere are usually assumed to have an identical distribution of gravitational potential. Supposedly these two bodies will equally act on a point mass which moves around them. Actually it is not so. To determine the influence of the rotating body on a point mass, it is necessary to integrate the motion equations of point mass with the influence of Newton gravity force from all parts of a rotating body. This task is so difficult that an alternative approach considered a compound model of a rotating body. Its rotation was represented as axis-symmetrical located in one plane of the several bodies, which as a result of mutual gravitational attraction rotates around a central body. The application of such a compound model of the rotation of the Sun resulted in velocities of change of all parameters of orbits for all planets from Mercury up to Neptune to coincide with results of observations of eccentricity, angles of inclination, of ascending node and perihelion.

Myers [51] was intrigued after discovering that a spherical shape enables gravity to focus on the exact center of any planetary body. Observations that falling water drops become spherical, just as molten lead forms cannon balls when dropped from a height, suggests the mechanism of gravity is internal and the power of gravity is determined by the collective mass. A corresponding gravitational effect may exist in the cloud of gas, dust, meteoroids and asteroids orbiting the Sun, but spacing of planets in the plane of the ecliptic suggests a collective gravitational power is projected in all directions. This leaves unanswered the internal workings of the atom. Current theories of gravitons, electromagnetism, "weak" and "strong" forces must be somehow related to gravity. Also, the Hubble redshift as an indicator of increasing velocity at the outer edges of an Expanding Universe is illogical—the speed of light should be constant throughout the Universe. Logic suggests the red shift is a metric of distance.

It is not coincidental that this collection of summaries ends with a series of questions and issues rather than answers. There is more work to be done to search for the great ideas needed to build a better physics paradigm. The NPA is the soil where concepts can grow.

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Index of Titles of Papers, Authors and Addresses in this newsletter

The page number of each paper's summary above is at the end of each citation

Long distance participation in our conference(s) was proven to be successful.

by Neil Munch

David de Hilster: super hero! The experimental *"in absentia"* participation this year by Tom Van Flandern from Washington State and Francis Fernandes from India went extremely well -- thanks to the tireless and expert assistance by David de Hilster, aided by his parents. Each video presentation and Q&A discussion at Univ. of NM went as planned, with initial introductions and then a one-way presentation by the author speaking to us via video projection on a large screen on which his charts appeared. Each speaker could also see the audience during his talk and in the one-way question and answer period. Preparations were done so well that we skipped a precautionary step of using pre-recorded videos and had LIVE conversations by both the speakers and the audience. Those were excellent for information transfer -- though a tiny bit slower than face-to-face conversations. Pre-recorded videos for Mitch Emery's \two "in absentia" papers were also available for non-interactive discussins.

Thanks to the many efforts by David. other participants (who had been alerted by deHilster's website, ***www. world-npa. Org***) also participated from their homes by watching these two experiments as well as other parts of our week-long conference. Everyone, with whom I've spoken, agrees that video-conferencing was a success and should be used whenever and wherever appropriate.

That raises the next issue: ***"How to organize, prepare and finance future video-conferencing"***. For the NPA 2008 conference in Albuquerque, David (and his family) did a Herculean job of planning; and then finding and transporting all of the needed equipment and software to and from the conference, setting up the equipment each day and then removing it from the conference rooms for safety purposes. Some equipment as loaned without cost but must be financed in future conferences. And each day, David (and parents) provided the expertise to aid each presentation -- even on the last days of the week when they had some little illnesses.

For NPA's officers and planners of the 2009 conference

in UConn-Storrs, we need to plan and provide the necessary equipment and expertise to provide video-conferencing to all "in absertia" participants from around the world.

(continued in "**videoconferencing**" on page 18)

(**Videoconferencing** -- continued from age 17)

So must those scientists not attending in person who wish to present paper(s) via videoconferencing (whether "in person" or "in absentia"): and those wishing to view and listen to any of our scheduled papers or discussion periods. Their-computers must be able to receive and transmit videoconference data. Some detail requirements are listed in *www.worldnpa.org* and in Wikipedia under "videoconference". In general, your computer must provide for video input (video camera or webcam) and audio input (microphone). Those are not overly expensive and the costs ar partially offset by the reduced need to travel at larger expense. In summary, this seems to be a clear advance in our information interchange via videoconferencing. On the "minus side", in absentia people will miss the invaluable information exchanges in face-to-face discussions at nights, meals, etc.

Also, if it's at all possible, you should now be a member and participating in www.worldnpa.org. David de Hilster has worked diligently to add additional features and archives of our materials and improve communications. If you are not, you are missing some excellent access to discussions and archived materials related to NPA areas of interest

NPA Conference Proceedings: All papers presented (whether "in person" or "in absentia") at NPA/'s 2008 Conference are eligible for inclusion in the printed 2008 Proceedings Volume to be edited and published by Cynthia Whitney. These Proceedings are another of the benefits provided to conference participants. If you submit your paper(s), they will be edited by Cynthia and published in the 2008 Proceedings book to be issued in mid-2009. The submittal format should be similar to that in the previous Proceedings books and the Galilean Electrodynamics journal). There is a modest $15 per page charge for those able to pay; no charge for those who are economically limited. In this manner, your paper will be:

a. Promulgated in a 'citable' source which you and other scientists can read and reference in future publications.
b. Be a part of an excellent publication providing the latest discussed concepts by NPA scientists.
c. This 2008 Proceedings Vol. 5, plus the previous volumes and our papers in the 2003 Jour, of New Energy provide a valuable and lasting archive of NPA's conference papers for the latest 6 year period. Sadly, some papers from earlier NPA years may no longer be retrievable.

Almost all NPA's 2008 conference abstracts and many of the papers are available at **www.worldnpa.org**
All members of the scientific community are welcome to join in discussion of these papers and other topics at:
the above website or our 2 user groups at: **NPA_Dissidents@yahoogroups.com** and **memberschat@worldnpa.org.**

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is devoted to broad-ranging, fully open-minded criticism, at the most fundamental levels, of the often irrational and unrealistic doctrines of modern physics and cosmology, and to the ultimate replacement of these doctrines by much sounder ideas developed with full respect for evidence, logic, and objectivity.

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