

**DUALITY OF REALITY AT PLANCK SCALE
VOLUME ONE**

FRANK BORING FITZGERALD
Planck Scale Theorist
6 Fitzgerald Lane Rockvale
Joliet, Montana, USA 59041-9304
quantumfitz@gmail.com

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To my dear wife, Velma, with all my love, gratitude, and devotion



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PREFACE TO VOLUME ONE

Volume One is intended to show what can be built upon a proposed concept of the resonant most small, leading to a merged DUALITY OF REALITY of all “things” from the PLANCK SCALE to a most large of the totality of the universe in a step quantum matrix assembly manner. Many concepts are ancillary to the resonant most small.

In the “void” of space, the very small is herein described as a resonant dipole having stabilized in frequency and amplitude from dimensional fluctuations. Due to compression \ expansion in those fluctuations, Schwarz and Green virtual black holes form at dipole end-nodes. The dipoles are found in standing waves intersecting in a quantized number of directions at each and every dipole end-node. The macrocosm is thus described as a matrix of these standing waves.

Einstein’s 1952 “Reality Field Law”, modified herein to include resonant dipoles and a bifurcation of Reality into our “Real” Reality and a conceptualized “*J* Reactive” Reality which “*J* Reactance” allows reformation of Einstein’s “Reality” as the law of the total universe. And, it allows for a concept of: “*The Singularity*”.

Expanding upon this duality of Reality allegedly allows a concept of our universe as existing now in but one cycle of an infinite number of cycles of the continuum from our “big bang” to yet another future big bang creating their universe, and, before our big bang there existed another universe not entirely unlike our own which ended some 14 billion years ago in our big bang. And the cycles go on and on, ad infinitum.

Allegedly, fields are joined under one concept; a proposed unified field theory results. Charge and Mass are also joined under the one concept. Bifurcated Relativity also results, as do other theories which are built upon the resonant dipole concept.

DUALITY OF REALITY AT PLANCK SCALE, is not just another string theory. This paper proposes to establish a unique set of propositions outlining an unabridged thoughtful study of the very small taking into consideration, resonance, *J* Reactance, modulation, etc.

f.b.f.

INTRODUCTION TO VOLUME ONE

In 1949, while working for the Los Angeles, California, Department of Water and Power, as a stationary engineer, in my off work hours, being miles from nowhere at a remote hydro-electric power plant [with live-in quarters], and little else to do, I began studying the heavy question of what constituted reality. I surmised everything was made of something much smaller than atomic particles. I began to study Ron Hubbard's dialectic concept published as a series in a popular magazine.

About that time, I began reading more and more science fiction in order to broaden my horizon. The more I studied Hubbard's ideas the more I realized I could not adapt any of his ideas, nor the popular, nor the run of the mill science, nor science fiction, concepts, to my studies of reality. Because they just did not fit and were, some of them, so far out of touch with reality I could not put any of them together in my head. I really had not gone into physics much to that point but had such a curiosity it nearly became an obsession seeking answers to my many questions about reality. This was before Einstein wrote his 1952 treatise on a "Reality Field".

In 1950, I conceived of empty free space as composed of minute 4D dots spinning around caused by some sort of Brownian movement. All too small to be seen with the most powerful microscope. I called the tiny dots, polka-dots. Bad idea.

Very bad indeed. Because in 1952, I bought one of Einstein's older books on Relativity at a used book store in Hollywood. While that older book did not completely change my thinking, I at least dropped the idea of polka-dots. I realized he was likely on the right track to reality with Relativity. His attempts at a unified field theory, in his final years, clearly was not working and he admitted he would not likely succeed. And then there was that conflicting theory of "quantum mechanics" nastily rendering Relativity un-sound as the theory of all of reality.

Also in 1952, Einstein finally pieced together a concept of reality he call a "Reality Field". Still, it did not lead him to a unified field theory as he had hoped for in those final days. Because I was no longer into Physics for many more years, that "Reality Field Theory" I did not actually learn of until after I read in the September 1986 issue of *Scientific American* about Schwarz and Green "Superstrings". It was after that, I bought a much later book on Relativity than my first one. That later version contained Einstein's Reality Field in Appendix V.

The Superstring theory so drastically effected me as to set me on an entirely new train of thought. I got back into studying Physics in a big way sticking my nose into as many Physics books, magazines, and journals as I could. It really changed my thinking because I saw Schwarz and Green, as well as many others I was to learn of, viewed the very small as in virtual dimensional fluctuation where the fluctuations were at times strong enough in peaks to result in formation of virtual black holes of a tension of around 10^{42} Kg at about 10^{-35} meters. Until then, I thought static fields were like DC. How could a static DC field be composed of something, very minute, in continuous fluctuation, in other words, AC? Those dimensional fluctuations were similar to the sort of Brownian movement I was looking for in connection with my 1950 concept of polka-dots. [I feel fortunate to have long since dropped the very bad idea of polka-dots.] My very first thought after finishing that all important Superstring article was fluctuations would lead to quan-

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tized fields—if resonances were involved.

As I now viewed it, dimensional fluctuations at the very small, since the big bang, have supplied virtual energies necessary to fulfill Einstein's concept of a Reality Field Theory.

It would take an equation involving AC, the resonances I just mentioned, of a synchronized matrix of intersecting dipole standing waves with their dipole end-nodes as virtual black holes, to make it thru the Lorentz transformations, not as a static DC reality field as Einstein had proposed. Thus, with AC of dipole resonances, not only can a Reality Field Theory be proposed but a Unified Field Theory can also result ancillary to that proposal. Then comes the joining of Charge and Mass. Not only a duality of Reality but an explanation of a duality of Relativity.

That smallness, mentioned in Schwarz and Green Superstrings *Scientific American* article I read, was a cue. 10^{-35} meters, near or at the Planck length. But, if we could not see that small, how could we know for sure what was happening? Oh! We can see a smallness in electron microscopes with some fluctuations but not the magnitude of fluctuations supposedly needed for production of virtual black holes of 10^{42} Kg tension.

I began to piece together a mind's eye picture puzzle of possible happenings at the Planck Scale. Eventually, published papers resulted. I took picture pieces from Superstring Theory, pieces from Reality Field Theory, and put them together, along with other concepts, in such a way as the result was resonant dipoles [instead of vibrating strings] in standing waves intersecting at dipole end-nodal virtual black holes in a matrix forming the macrocosmic empty free spacetime void, I called Level 1 of Reality, which Real Reality concept [the AC of resonant dipoles] was susceptible to being built upon by concepts of fields at Level 2, charge and mass at Level 3, and *J* Reactive Reality, *the* singularity, at Level 4. Levels 2, 3, and 4 are based upon ramifications of modulations upon Level 1.

The pieces fit together smoothly in my mind's eye view of a Real Reality and a *J* Reactive Reality. This dual reality concept resulted. From which sprang fields, charge, mass, *the* singularity, access to *the* singularity, entanglement, teleportation, superluminal transmissions, causes of a duality of Relativity, cycles of *the* big bang, and other concepts dealing with the universe.

Allegedly, all of reality can be described in such a fashion, so your mind's eye can see into the Planck Scale, leading to an understanding the Planck Scale of reality is not DC based in merely four steady state dimensions like Minkowski's equation (1) [see page 21] but AC based [dipole resonance] allowing for a view of *J* Reactive Reality, existing as a result of a modulated Real Reality as value added. [I prefer not to call these modulations multi-dimensions beyond the familiar 4 altho some scientists have as many as 26.] This duality of reality can be shown, in very simplistic terms, by an equation similar to the equation for impedance which equals real resistance plus non-imaginary *J* reactance, but that simple equation is missing all of the necessary coefficients and factors to expand the dual reality thought which we will see later on:

$$\mathbf{z} = [(\mathbf{a})_{\text{Real Reality}}] \pm [J(\mathbf{b})_{\text{J Reactive Reality}}]$$

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with [J (b) $_{J\text{Reactive Reality}}$] as value added as the result of amplitude modulation of [(a) $_{\text{Real Reality}}$] which Real Reality dipole resonance is the f_{carrier} which is modulated. f_{carrier} is Planck length divided by Planck time equals Planck frequency.

J is an operator found in electrical and electronic engineering AC mathematics. J from now on in my paper will indicate the (b) factor it is attached to is reactive at the Planck Scale where it has either a plus or minus 90° phase relationship to that of the (a) factor which is in resonance. At the macrocosm level it indicates value added. Therefore, **J is not imaginary**. However, J is equal to i which is $[-1]^{1/2}$ of physics complex numbers mathematics. Apparently, there is no present conclusively convincing evidence to suggest the mind's eye view of a dual reality presented herein is actually provable. However, the pieces to this puzzle do seem to fit together representative of a dual reality and two families of amplitude modulation do seem to represent *things*. And two more families of frequency \ phase modulation can represent artificial access to *the* singularity we shall see later.

This presentation of two mathematically related realities, Real Reality and J Reactive Reality, takes some getting use to because it differs so drastically from classical and modern physics dealing with reality. The three closest modern concepts, made use of in my paper, are Schwarz and Green Superstrings, an AC based concept; Einstein's Reality Field, a DC based concept; and, quantum mechanics, an AC based concept. This paper merges these three modern concepts into two AC frameworks of translocation, that of a charge based Relativity and a mass based Relativity, with explanations herein for both.

Because all aspects of reality proposed herein, are AC based [dipole resonance, modulation, and sidebands], they blend in well with AC based quantum mechanics.

We shall find, every aspect of reality has some relation to every other aspect. No thing stands out all by itself. And all *things* are viewed as AC based allowing for mind's eyeing a J reactive component to reality, giving us the opportunity to view the J Reactive Reality of *the* singularity thru portholes of virtual black holes at dipole end-nodes.

Logic plays a very large role herein via joining together various picture puzzle pieces for a mind's eye view of the duality of reality.

All of the universe can be described for the mind's eye in terms of a bifurcated physical reality existing in a duality—Real Reality part and a J Reactive Reality part. Together these dual aspects of reality exist in four levels and in combinations thereof. Level 4 does not exist by itself; it is found only in concert with Levels 2, and 3 which themselves can not exist alone but must involve Level 1 in order to be constituted. [AM, full carrier not single sideband suppressed carrier type of AM, does not exist without its carrier it modulates.]

This paper brings together these four levels of the dual reality based upon a commonality of Level 1 as beginnings, a sort of medium, for modulations of Levels 2, 3, and 4 upon the dipole frequency as a carrier frequency. Longitudinal and transverse amplitude modulations are herein

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said to represent all *things* in Levels 2 and 3, with Level 4 representing *the* singularity—having an unimaginably huge *J* reactive storage capacity.

Relativity is bifurcated into charge based and mass based. Relativity is described herein as effects represented by translocation of modulation sideband components which allow joining of Relativity with quantum mechanics. Einstein Reality Field is viewable under one overriding concept, Level 1. The forces of nature are viewable under one over-riding Level 1 concept but with modulation imposed. Inertia and *J* reactive gravity similarly. Mass and charge are also viewable under the one over-riding concept but much more complex. Because Level 1 dipoles are ½ cycle quantized so is every thing at Levels 2, 3, and 4 which are themselves built upon the commonality mechanics of Level 1. And, all changes in Levels 2, 3, and 4 occur in steps related to the Level 1 dipole ½ cycle quantum.

I believe it is paramount, we view reality from the very small of Planck Scale and in terms of a quantum matrix to begin to understand reality's enormous complexity. Just the size of the powers of 10 involved stagger the imagination.

Some of the numbers involved are:

1. resonant virtual dipoles have a Planck length of about 10^{-35} m;
2. a Planck time at about 10^{-43} sec;
3. simultaneous compression \ expansion resonant peaks at about + and - 10^{42} Kg forming and unforming virtual bipolar black holes at dipole end-nodes during those peaks, alternating with the resonance each ½ cycle;
4. dipoles exist joined end to end in near infinite ratio standing waves which waves intersect in 10^{43} directions at each and every dipole end-node to form the universal quantum matrix reality;
5. specific types of step quantized primary amplitude modulation, AM, of the dipole's precise resonant frequency, about 10^{43} Hz, uniquely account for each and all *things*;
6. intensity of dipole modulations exist step quantized in 10^{43} steps.

In 1949, I had contemplated the very small, getting nowhere absent cyclic phenomena of resonant dipoles. I returned to mind's eye study the very small beginning again to write notes [on September 27, 1987] after studying Schwarz and Green **Superstrings** I found in the magazine archives of the local public library. Just browsing. What a startling surprise—Superstrings!

Superstrings? Fantastic! In the 1980s, Schwarz and Green had the undeniable beginnings of spacetime answers to have eluded scientists since the dawn of human curiosity. When you think of Superstrings, think of the ones who had the most to do with the very small back in the 80's. They should have gotten the Nobel Prize.

Einstein's Reality Field was said by him, in 1952, to be *the* thing of the otherwise empty spacetime void. I thought quantum Planck Scale dipoles naturally resonating longitudinally at a precise frequency in intersecting standing waves forming a universal matrix might better explain *the* thing of *the* spacetime void, which under conditions of dipole AM might point, as Einstein would have wanted, to theories of unified fields and unified charge \ mass. Then, on to a unification of

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everything, **if**, I could only poke my mind's eye into the very small of the Planck Scale, determine what that some thing was, then try to relate at-rest gravity and at-rest electric field not directly to each other but both directly to that some thing. The very small appeared to me to be a very complex arena of puzzle pieces.

So I have studied and expanded basics of the very small since learning of Superstrings but from considerably different points of view complexly related to resonant dipoles and modulations thereof.

Most deep thinking persons should be able to grasp concepts of my paper. However, those concepts may not now be easily understood in mathematical terms of a single equation because of an in-depth complexity that single equation requires to define nature in all of its wonders.

For example: Do we want to define a gravity field or an electric field? Minkowski's 4D equation **(1)**, at page 21, is a proper equation to start with, but, it is not, in and of itself, an automatic solution to any thing, because, obviously equation **(1)** contains no cyclic phenomenon. To reach *the* thing requires refining, with cyclic phenomena, equation **(1)** with a diverse set of complex coefficients to match the chosen goal which then is applicable to a study of quantum matrix reality, that is, to include in equation **(1)** "**many degrees of freedom**", each degree representative of the goal sought. By combining the many mathematical terms as coefficients, one ought to eventually reach that single all-encompassing equation having its roots in Minkowski's 4D equation **(1)**.

Examples of complexities: When I got to defining a Planck Scale dipole, I determined its resonance was **longitudinal** compression \ expansion. When I got to defining an at-rest gravity field, I determined its dipole AM was **longitudinal** value added. When I got to defining an at-rest electric field, I determined its dipole AM was **transverse** value added.

Longitudinal resonance of the dipole itself being the least common denominator and a starting point for viewing and defining a universal commonality mechanics, that is, Level 1 of quantum matrix reality.

Dipoles, in their various modes of operation, are herein said to be described simplistically via viewing **four levels to quantum matrix reality**. As I studied reality at Level 1, I found it was *the* thing of spacetime void, a close analogy to an Einstein Reality Field he described as constituting the spacetime void only my reality field is a matrix of quantized resonant dipoles existing in intersecting standing waves making it an AC based quantum matrix reality field. I choose the word matrix for lack of a better word to describe my mind's eye view of a multitude of intersecting dipole standing waves. The word matrix can be used to generally describe reality in either macrocosmic or Planck Scale terms.

CHAPTER 1

DIMENSIONAL FLUCTUATIONS AT DIMENSIONAL VERY SMALL

Viewing smallness from 10^{-15} m towards the very small at about 10^{-35} m, length is said to be in virtual fluctuation which gets stronger with the smallness, that is, virtual entropy increases as length gets smaller, until the length of a Planck Scale virtual dipole is reached, at which point due to the universal checks and balances system of the virtual bipolar black holes, thereupon entropy decreases abruptly to near zero if not actually zero. If not a perfect zero, there is a universal step one quantized minute strength gravity in the otherwise void of space.

Time dimension is also in virtual fluctuation with increasing fluctuations as time is measured at shorter and shorter intervals until time interval gets to about 10^{-43} sec at which point time synchronizes sinusoidally covariantly with length to form the Planck Scale virtual dipole as all of Level 1.

These dimensional fluctuations could also be thought of as constituting some sort of dark hidden energy which dark energy some scientists are viewing today as effecting the universe in as yet uncertain ways.

The universal matrix at the macrocosm is associated with dipole quanta at Planck Scale. This is our empty free space Real Reality fabric, the quantized Einstein Reality Field, as seen from the resonant very small.

In the past, said length fluctuations could not be analyzed in real time [time was not thought of as in fluctuation at the very small], so indeterminacy principles were formulated. Heisenberg, for example. Einstein objected to indeterminacy principles, as did many others; and, so do I. Heisenberg principles were formulated for fluctuating length but time seems to have been thought of only as unvarying. Today, we have enough theoretical background, mathematical insights, and results of experiments to formulate concepts of real time analyses of the very small in terms of resonance, thereby we are able to derive dipole quanta, a concept with which we can apply to everything. Both length and time are in resonance covariantly in the virtual dipole.

Dimensional fluctuations in the range larger than the dipole are all secondary random AM having extremely wide amplitude, phase, frequencies, and bandwidth of sidebands. At about 10^{-35} m, upper sidebands of dimensional fluctuations are swallowed into the event horizons of dipole virtual black holes providing the negative feedback for dipole resonance stability. The event horizons form non-linear elements for generating AM sideband components in connection with translocation.

After some years of studying black body infra-red radiation, in 1901, Max Planck (1858-1947) put forth his concept of quanta, fundamental energy increments of EM radiation as a function of frequency, which later thru analyses and application became useful in quantum mechanics, now very basic to physics.

de Broglie (1892-1987) expanded upon Planck and conceived of electron waves in 1923-4, improving the mechanics of Planck's quantum physics. de Broglie put forth the concept energies of

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electrons in atoms are in orbital standing waves of precise quantum numbers depending on the orbit and showed some sort of locking or synchronization mechanics was involved. He was able to show when an electron changed orbit it changed a precise quantum number of standing waves which change in energy to match the quantum of EM involved.

If the concept of Planck's radiation quanta be correct, which most all of us now accept, it appears logical to suggest a beginning and an end to each of his $h\nu$ quantum from a mathematical point of view. This suggests quanta of discrete packets of energy appear stabilized when taken as an average over time but which, when viewed individually, would occur at different points on a bell curve of mathematical fluctuation of some sort. Otherwise, EM quanta would not exist and its radiation would only exist in the form of a continuation. Laser EM consists of phase locked quanta, thus it appears as a continuation, for periods during pulses or otherwise.

Dimensional fluctuations are themselves a product of the universal matrix. Which came first? In the actuality of negative feedback, generated by the end-nodal virtual black holes, there is no such *thing* as which came first.

At below the frequency of, but near the dipole resonant frequency of the very small length-time of Planck Scale, dimensional fluctuations are simply recognized as extremely wide bandwidth random secondary AM upon the fixed resonant dipole frequency f_{carrier} which secondary AM bandwidth is proportional to strength of dimensional fluctuations. As we approach the smallness of Planck Scale, the secondary AM upper sidebands [far removed from lower frequency fluctuations] looks like wider and wider white noise of lower and lower amplitude for any upper sideband component getting close to the Planck Scale. This concept adds to a pattern for studying composition of charge and mass at the Planck Scale.

Here is my generalized explanation of why at the resonant very small we view only standing waves of resonant dipoles instead of dimensional fluctuations of very intense proportions:

1. Schwarz and Green have proposed, as have others, a natural property of extreme smallness is dimensional fluctuations. Michael Green, *Scientific American*, Sep 1986, p53;
2. At or near about 10^{-35} m [Planck Scale], they postulated, dimensional fluctuations at stress peaks are very much intense enough to form virtual black holes, using the theory of Relativity to demonstrate the process. Michael Green, *supra*.

It is my assumption, and background for my book, Schwarz and Green are correct in their postulations of dimensional fluctuations at **1.** and virtual black holes at **2.** Additionally, I propose, at precisely Planck Scale, said Schwarz and Green dimensional fluctuations and their said [step one] virtual bipolar black holes mutually form the basis for a Level 1 universal matrix, a commonality mechanics, which virtual bipolar black holes act to swallow, reflect, contain, and confine virtual energies of dimensional fluctuations via causing synchronization into length-time dipoles of simple sinusoidal periodic length-time motion at an exact frequency in a multitude of intersecting standing waves.

The containment and confinement mutually equate to the checks and balances system. One as-

CHAPTER 1 Continued

pect does not exist without all others with the causes and effects in mutuality, beginning our study of nature's commonality mechanics. Which came first? They all come together as natural events.

Now I shall examine in detail the oscillations of a Planck Scale dipole in a setting of the macrocosmic matrix to see what is happening. When I studied the fluctuation effect in measurements of length of the order of Planck Scale, why did I stop there, why not go a higher order of resolution to an even shorter length? The answer is fluctuation and entropy effects grow ever so pronounced as we get smaller and smaller from a size of proton about 10^{-15} m down to the range of the very small, of Planck Scale, at about 10^{-35} m at which precise Planck length we observe step one point virtual bipolar black holes forming with each peak of compression \ expansion stress of the fluctuations just at a precise value of the order of about 10^{42} Kg.

This forms the beginnings of the checks and balances system which has the negative feedback effect of stabilizing fluctuation virtual energies at that precise wavelength and any energy of wavelengths shorter is absorbed into the virtual black holes thru their event horizons thus reducing entropy to near zero at that smallness producing oscillations of periodic longitudinal length-time motion; instantaneously reducing the fluctuations and entropy bandwidth from gigantic to near zero at the reflection impact points [event horizons of the point virtual bipolar black holes]; dipole resonant circuit Q [from Electronics] changes from near zero to near infinite. This is what is seen as Level 1. Fluctuations at much larger $\frac{1}{2}$ wavelengths than Planck Scale are unaffected by stabilization of the checks and balances system except to suggest the larger fluctuation $\frac{1}{2}$ wavelengths appear as secondary AM wherein their sidebands at spectrally very low frequencies are harmonically phase locked to f_{carrier} due to a property of the rectilinear character of virtual black hole event horizons.

Because dimensional fluctuational spectrum virtual energies are compressed into forming f_{carrier} [assisted by small amounts of virtual energies of phased locked lower sidebands], in the first place, we wind up with full carrier [the dipole resonant frequency] having only lower sidebands of fluctuational virtual energies [referred to herein as secondary AM]. All upper sideband virtual energies were swallowed into the end-nodal point virtual bipolar black holes and ought to assist in forming at least a step one residual gravity field thruout the continuum as a component part of the redshift.

Either the macrocosm is infinite or it folds back upon itself; in any case, the checks and balances system is in place working all the time; the why of establishment I leave to others to ponder. The 1st part of bifurcation of reality consists of a Level 1 of these unmodulated, that is, no primary AM dipoles; a sort of quanta fog of virtual energy resonances in a universal matrix existing everywhere in length-time.

In Level 1, I assign periodic motion within any given dipole resonance as the special case of motion. I assign primary AM of dipole resonant motion at Level 4 as associated with a quantized bifurcation of reality into that which is real [on the dipole resonances in between end-nodal virtual black holes] and that which is J reactive [inside all the event horizons of the virtual black holes].

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I assign translocation in the general case to motion of primary AM sideband components longitudinally from dipole to dipole on each standing wave in order to derive a concept of quantized bifurcation of Relativity, longitudinal and transverse primary AM.

Upon this precise virtual quantum dipole resonant frequency, f_{carrier} , are found two families of step quantized primary AM five kinds of AM in each family, longitudinal [mass family] and transverse [charge family], plus one of step angle AM [field direction], plus another one of step torsional AM [chirality]. The two families account for a bifurcation of Relativity into mass based and charge based. Sidebands in translocation, also quantized, result from combinations of these twelve unique primary AM and the clipping action of the rectilinear discontinuity at virtual bipolar black hole event horizons. Complex harmonic motion is associated with Level 2 fields; complex on top of complex harmonic motion is associated with Level 3 mass and charge.

Associated with Levels 2 and 3, is a Level 4 which are the insides of virtual bipolar black holes [at the dipole end-nodes] forming the second part of the bifurcation of reality, *J* Reactive Reality. Primary AM sidebands are associated with clipping the dipole resonance while passing into *J* Reactive Reality of the virtual bipolar black holes and passing back out into our Real Reality as a function of resonance, which in-out action takes place at non-linear event horizon points at each virtual bipolar black hole with their own *J* Reactive Reality inside. See Figure 8.

It is the dipole peak potential virtual energies of resonance which if on the increase add additional value of step primary AM which when it exceeds a total of about 10^{42} Kg, then formation of virtual bipolar black holes appears at each dipole end in steps of increasing line length [towards the dipole trough - center of the dipole] as a function of the step AM. In the resonance, virtual dipole total energies exceeding about 10^{42} Kg upon entering the virtual bipolar black hole event horizons therein results in a number of effects we study later. [For example, see *the* singularity beginning on page 82 and entanglement beginning on page 87.]

Dimensional fluctuations have an enormous wide spectrum bandwidth whereas each Level 1 dipole has a spectrum of virtual energy of near zero bandwidth. This is due to Level 1 dipoles existing at step one of longitudinal AM via production of dipole end-nodal virtual black holes. There are quantized steps of about 10^{43} steps as a function of intensity of Level 2 and 3 AM. Empty free Level 1 has no AM imposed.

In the theory of full carrier AM, the carrier [f_{carrier}] is totally unaffected in the spectrum generation process [if less than 100% AM]. In this presentation, sideband generation from primary AM is associated with clipping action caused by the rectilinear properties of the dipole virtual black hole event horizons.

Added unique clipped primary AM upon the dipole carrier frequency, f_{carrier} , is associated with sidebands representative of a field, mass, charge, and, with translocation of primary AM sideband components associated with bifurcated Relativity.

We ought to be able to mathematically confirm dipole parameters in the presence of clipped AM

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on the basis of how they matrix parameters of much larger event objects such as fields interacting with fundamental particles. For example, a single electron in a magnetic field having a magnetic quantum number [space quantization via angle primary AM].

Dipole step quantization occurs because primary AM [representing fields, charge, mass] is related to $\frac{1}{2}$ cycle of the carrier frequency, f_{carrier} . To change level of primary AM requires it occur in discrete steps because of the checks and balances system suppressing any out of sync AM just as it does with the virtual energies of dimensional fluctuations producing f_{carrier} . Translocation of primary AM sideband components are step quantized as well, due to the checks and balances system suppressing any out of sync AM component. Fourier series math is useful in analyzing these clipping, translocation, and checks and balances events.

It is my expression, all virtual energy increases of dipoles, due to presence of primary AM, at the very small of our reality, are not continuous in any changes of intensity but only occur in discrete steps related to dipole $\frac{1}{2}$ cycle motion. All 12 primary AM systems of quanta are composed of such step intensity levels. The physical seeing is impossible at this time because we do not have the instrumentality to actually see 10^{35} dipoles per meter, and, of course we can not see the AM directly, either. However, I suggest we might be able to measure effects of space quantization [magnetic quantum number] as a function of dimensional fluctuation lower sidebands phase locked to f_{carrier} . [A view of resonant de Broglie quark waves, for example and their orbital standing waves which give or take quantum energy in the presence of excitation via the strong force.] Adjacent levels of quantum could then be determined one from another because the far distant down frequency sidebands could be extrapolated. This should take place at absolute 0° K to take temperature quanta out of the experiment. Optical tweezers, laser entrapment, ought to be useful as tools to measure lower sidebands. However, those experiments might run into another effect at that 0° K temperature, zero point energy field.

The question can be posed. What random virtual energy source supplies the dimensional fluctuations? The energy may come from the non-linearity of the rectilinear properties of the virtual black hole event horizon, in effect, challenging the zero point energy field for control of the spacetime void stabilization taking place whereby the virtual black holes produce the dipole resonating in a matrix of standing waves. It appears, co-existence can not occur and a sort of rectification noise energy results having many orders of magnitude higher than simply for the rectification noise effect of the virtual black hole event horizon in and of itself. So, it appears the dimensional fluctuation energy comes from the zero point energy field via rectification noise generated by the virtual black hole event horizon. This is to suggest, while effects of virtual black hole negative feedback stabilize the dipole resonance, the encounter of the virtual black hole event horizons with the zero point energy field produces a positive feedback adding to the dimensional fluctuational sidebands down frequency from the dipole resonant frequency.

The second potential source of dimensional fluctuational virtual energies may come from the non-linear reality matrix itself not having a precise quantum number of directions at the dipole end-nodal black holes. This is to say, if there are no precise quantum number of directions then the system of the matrix is always in flux trying to land a precise quantum number. This could

CHAPTER 1 Continued

produce random dimensional fluctuations also known as zero point energy field.

My preliminary calculations of number of directions, 10^{43} , do not produce a finite integer quantum number which I feel can not exist without the matrix attempting to regulate itself, in negative feedback mode via the checks and balances system, seeking to produce the precise quantum number and in doing so create the zero point energy field virtual energy.

The dimensional fluctuations at lower frequencies are herein considered secondary random AM.

LEVELS OF QUANTUM MATRIX REALITY

Level 1 of quantum matrix reality is herein said to be the void of empty free spacetime described as Einstein's Reality Field revisited via quantized Planck Scale resonant dipole virtual energies of a precise frequency, with a precise $\frac{1}{2}$ cycle quantum of virtual resonant energies, potential and kinetic, phased 90° which dipoles exist in a matrix of standing waves intersecting in 10^{43} directions at each and every dipole end-node. [We shall later see why only a $\frac{1}{2}$ cycle quantum instead of an $h\nu$.] Dipoles form out of dimensional fluctuations at the very small which fluctuations occur in a very broad spectrum at and below near the dipole resonant frequency, but not above due to absorption of upper sideband virtual energies by the dipole end-nodal virtual black holes. The dipole resonant frequency is high enough to allow for a Level 1 formation of dipole end-nodal virtual black holes [at least at AM step one—more on this step one later in the “redshift”]. Formation of dipole end-nodal virtual black holes out of the dimensional fluctuations are herein said to create a system of dipole stability and confinement into the intersecting standing waves with an extremely strong checks and balances system resulting. [10^{42} Kg tension] The virtual black holes provide the necessary negative feedback needed for the system of dipole stability to function. This gives us a Planck Scale AC detailed picture of reality but an overall steady state DC Real Reality we see at the macrocosm as the spacetime void.

Level 2 is described as conventional observable fields composed herein of two types of step quantized primary amplitude modulation [primary AM] virtual energy [simple and complex longitudinal AM for mass and simple and complex transverse AM for charge] imposed upon Level 1 dipole resonant virtual energy seen as the carrier frequency. Sidebands are produced during the mixing process which takes place at the virtual black hole event horizons acting as rectilinear heterodyne elements. Looking by means of such modulation upon such carrier, it can be said there is an appearance, at the very small of the Planck Scale, of a commonality, a dipole quantum mechanics, which ties together all fields in a proposed Unified Field Theory modifying Einstein's Reality Field to include the quantum matrix of the very small of reality.

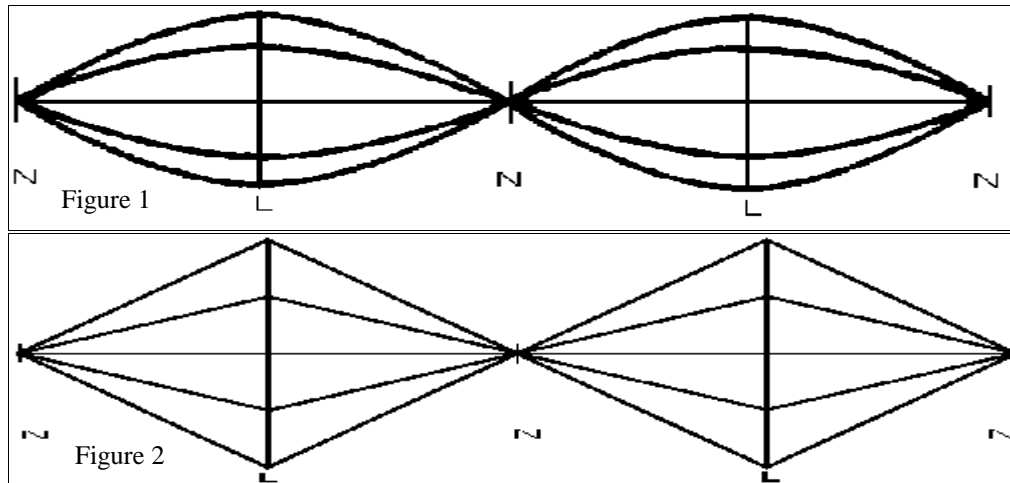
Level 3 is described as mass and charge in similar fashion as fields as regards having a common mechanics, Level 1. Mass and charge appear in a proposed Unified Mass-Charge Theory via two types of step quantized primary AM similar to fields but in a setting of mathematical complex phase planes much more complicated than the simple math of quantum fields.

Level 4 constitutes a *J* Reactive Reality. All virtual black holes at dipole end-nodes are described herein as porthole entrances to *the* singularity and are always found associated with Level 1 at

CHAPTER 1 Continued

step one, and, Levels 2 and 3 at any step of modulation. A *plus* virtual black hole forms step quantized at one dipole end-node during peak of compression simultaneously with an equal intensity *minus* virtual black hole at the opposite end-node of the same dipole during peak of expansion with both polarities reversing each $\frac{1}{2}$ cycle of dipole resonance. [Designation of a *plus* for dimensional compression and a *minus* for dimensional expansion is to establish a convention herein.] *The* singularity has a *J* Reactive Reality strangle-hold upon all black holes of the universe, be they stellar black holes or dipole virtual black holes.

CHAPTER 2



STANDING WAVES

Graphically, standing waves look very different viewed at macrocosm levels and at Planck Scale. The difference can be represented by comparing Figure 1 and Figure 2.

Figure 1 is a graph of a line segment of two infinite ratio standing waves of vertical **sinusoidal** energy versus **linear** time at the macrocosm: An example would be quantity of electron flow at points along an antenna of two stacked dipoles.

Figure 2 is a graph of a line segment of two infinite ratio standing waves of vertical **sinusoidal** virtual dipole energy versus **sinusoidal** time covariant at Level 1 of the Planck Scale Real Reality.

Bear in mind, the waves of Figure 2 are but two Level 1 dipole waves out of an infinite number on but only one line segment of standing waves intersecting at 10^{43} directions at each and every dipole end-node which form the universal matrix.

I accept the premise of dimensional fluctuations at the Planck Scale and incorporate the resonant very small in building my concepts for this paper.

Near the Planck Scale, but larger than the dipole $\frac{1}{2}$ wavelength, all dimensions are in fluctuation including time. Precisely at the size of the dipole, time **can not** be linear, must be sinusoidal with both length and time in resonance, covariantly, which non-linearity can then be seen with an expansion of equation (1) in terms of including as coefficients, dipole cyclic phenomena.

Along a Level 1 dipole, c can not vary [as it would in Figure 1] because if any part is less than $|c|$ then there must be an equal compensation greater than $|c|$ in order for an average to be $|c|$. Most scientists would agree $|c|$ can not be an average with some Δ parts greater and other Δ parts lesser than $|c|$. Thus, dipole length and time are both presumed herein to be covariantly sinusoidal at the Planck Scale in Level 1 dipole resonance in order for c to equal $|c|$ at

CHAPTER 2 Continued

every Δ part.

The dipoles of Figure 2 at Level 1 can be viewed as correct because the equation for velocity of light c at each and every Δ length-time along any given dipole regardless of how large or small the Δ , must always equal $|c|$.

The $|c|$ mathematical proof of Figure 2 accuracy is shown by dividing any dipole physical length Δ by its length of time of the same Δ . Level 1 dipole resonance, virtually free of harmonics and modulation sidebands, is therefore length and time sinusoidal covariant if there is to be no variation in c at any point along the dipole, which is an assumption I make herein.

I also assume at Level 1, there is a natural system of checks and balances in place generated by actions of the virtual black holes upon the dimensional fluctuations. It follows, all dipoles of all standing waves in the universal matrix have a precise fixed frequency of resonance with no coupling action existing amongst any and all lateral adjacent dipoles in Level 1 due to the negative feedback characteristic of the dipole end-nodal virtual black holes. This does not prevent longitudinal and transverse sidebands from being transmitted during translocation which accounts for a duality of Relativity.

Levels 2, 3, and 4, pose different matters we see later in *the* singularity, wherein lateral coupling does occur but inside *the* singularity.

My paper proposes to modify Einstein's Reality Field steady-state [DC] model, hypothetically, so as to include in his Reality Field concept a matrix of Planck Scale resonant quantized dipoles [AC], in the following way:

1. Compare Level 1 dipoles in my paper with Einstein's Reality Field where he indicates the pure gravity field has symmetry but his Reality Field is without this symmetry. This would manifest itself as our "view" of dipole non-symmetrical longitudinal resonance [compression at one end simultaneously with expansion at the other end] being similar to value added in the form of gravity.
2. I propose the symmetry aspects of pure gravity field, Einstein mentions, are Level 2 macrocosmic based wherein all matrix Planck Scale resonant [AC] events are summed with an averaged appearing continuous [DC] because we lack the necessary resolution to see the Planck Scale resonant dipole [AC] events in real time action at 10^{-35} m.

When we look only at the macrocosmic picture of gravity we cannot see the minute events happening at Planck Scale because it is impossible, at this time, to see or measure, the standing waves of 10^{35} dipoles per meter.

3. I propose the non-symmetry aspects of reality, Einstein mentioned, are Level 1 Planck Scale based wherein all Planck Scale events are considered, in my paper, as components of a universal quantum matrix. When we look at each standing wave dipole by itself, end to end, we see non-symmetry happenings forming and unforming, particularly at the ends of the dipole, reversing each and every $\frac{1}{2}$ cycle of dipole oscillations; that is, reversing dipole virtual black holes of com-

CHAPTER 2 Continued

pression [plus] at one dipole end and expansion [minus] at the other end. So, viewing Planck Scale dipole reality in real time action is not the same as reality viewed macrocosmically as an average where we can not see any action.

4. Also, I propose the non-symmetry aspects of reality, Einstein mentions, are related to the relationship at the Planck Scale between a physical length dimension and the dimension of time. We can mind's eye view a physical length dimension as composed of a chain of dipoles all resonating in standing waves making zero average dimensional change due to even-parity. But time, while in resonance covariant with physical length dimension, has no such zero average change. Time progresses forward explainable on the basis of odd-parity reflections at dipole end-nodes.

We shall see this comparison is adaptable to my presentation to establish some confirmation of effects associated with one type of AM upon dipoles, [representing] at-rest gravity field, which is longitudinal primary AM, and another type [representing] at-rest electric field, which is transverse primary AM.

Einstein's mathematical and intuitive analysis, dealing with equation (1), appeared to suggest to him, confirming earlier thinking by others, there is no such thing as *no thing*; no empty field-free spacetime void. A paradox thus he imagined, to the 1st approximation. Applying logic and his Theories of Relativity to the paradox, he seemingly resolved the dilemma moving on to develop his Reality Field [altho absent dipole cyclic phenomena, which I say, prevented him from realizing his goal—that of a unified field theory.]

He was looking for some kind of a field which could form a basis for a description of the void of empty spacetime in terms of reality, which could form his *some thing*, and concluded reality was a non-symmetrical form of gravity, not detectable by experience.

He felt his Theories of Relativity did not need an ether [which ether Maxwell relied on]. Over the years, Einstein's theories did not prove or disprove the presence of an ether of the kind contemplated in the late 1800s. That is, not until his Reality Field strongly leaned in the direction of an ether, altho of course, he would never have called his model of reality, the ether. Neither do I with my model of quantum matrix reality.

Classically, absent fields, mass, or charge, supposedly the spacetime void is empty, free, *no thing*. Yet, spacetime has to be some kind of field, Einstein said, which is *some thing*, because, he envisioned, there still remains the nagging matter of metric space defined in equation (1) which also would determine inertial behavior of an inertial translocating test body introduced into that metric space. So his Relativity math told him.

While he got highly technical, with his math and all, he nonetheless appeared to have solved the paradox of spatial *some thing* versus spatial *no thing* thru expanding his Relativistic math to satisfy him. He was then with his newly developed Reality Field on the verge of his sought after unified field theory when he died in 1955. On his death bed he again tried to formulate his unified field theory but failed.

CHAPTER 2 Continued

If only there had been time for Einstein to have considered action [AC] effects at the Planck Scale in terms similar to de Broglie wave mechanics of electrons in atomic orbit shells in light of Pauli's exclusionary principle. With these two theories in mind, he could have wondered about his Reality Field in terms of some kind of similarity to an electron orbital synchronizing mechanism in the neutral atom which involve orbital standing waves of precise [quantum] numbers thereby to see perhaps its foundational basis was very much smaller than even he had imagined and was resonance [AC] based not DC based.

No one on the planet at that time was able enough to continue with his line of thinking, not so much lacking academic talent as lacking a unique Einsteinian visualization of relationships among *things*. His works seemed to have been carried on by those who developed the concept of Strings in the '70s and '80s, then onto Superstrings conceived by Schwarz and Green, and followed thereupon by others [who apparently are not recognizing Schwarz and Green as originators of Superstrings].

Neither equation (1) nor (2), per se, contain dipole cyclic phenomena, as written. As I see it now, quite possibly that is why Einstein failed to derive a unified field theory. Dipole phenomena involves quantum mechanics which points to unification theories.

CHAPTER 3

EINSTEIN'S REALITY FIELD REVISITED

I propose my Quantum Matrix Real Reality Field is similar to Einstein's 1952 Reality Field when his Reality Field and Relativity models include Planck Scale dipole cyclic phenomena, of Level 1 as presented herein.

Each of the two fixed virtual energy units of each resonant dipole is referenced to the other as exchanging back and forth their respective virtual resonance energies [potential - kinetic] in a ½ cycle quantum forming the essential and precise Level 1 dipole frequency carrier f_{carrier} which is capable of being step modulated with combinations of 12 unique types of primary AM associated with Levels 2, 3, and 4. A dipole quantum, E_{dipole} , is in regards to these ½ cycles of dipole resonant virtual energies by convention established herein.

At Level 1, simple periodic length-time standing wave sinusoidal resonance of dipoles occurs between end-nodes of each dipole in a reflecting back and forth. Upon a reflection, the length virtual energy reverses course to go back to the other end-node without increasing overall length dimension. This I refer to as **even-parity**. Dipole time reflects back and forth in sinusoidal resonant synchronization with dipole length but such reflections do not result in a cyclic time reversal upon reflection due to equation (1) having a [-] sign for time dt^2 factor and thus dipole time resonant reflection is associated with **odd-parity**, meaning the time dimension of each ½ cycle sequentially adds to the previous time dimension in a continuum of time. These dipole events lead to establishing a quantum for length and a quantum for time of each dipole ½ cycle and establishing the basic Level 1 frequency of resonance, f_{carrier} , as fixed for all four reality levels thruout the universe.

Here is what Einstein wrote in 1952 about his Reality Field. I pickup his words at his writing of Minkowski's 4D equation (1). He then produced equation (2). From there he progressed to space-time as composed of some sort of a non-symmetric gravity field he called a Reality Field, so as to take into account application of his Relativity to inertial bodies in translocation thru Minkowski's 4D coordinates. Notice in equation (1) the [-] sign for factor 4, time. **This [-] sign is extremely important in my paper, establishing a number of things explored herein.**

QUOTE:

$$(1) \quad ds^2 = dx^2 + dy^2 + dz^2 - dt^2$$

[Minkowski's 4D equation]

“An objective metrical significance is attached to the quantity of equation (1). This is readily shown with the aid of Lorentz transformations. Mathematically, this fact corresponds to the condition, ds^2 is invariant with respect to Lorentz transformations.”

“If now, in the sense of the general principle of Relativity, this space (1) is subjected to an arbitrary continuous transformation of the coordinates, then the objectively significant quantity ds^2 is expressed in the new system of coordinates by the relation:

$$(2) \quad ds^2 = g_{ik}dx_i dx_k \dots\dots\dots$$

CHAPTER 3 Continued

which has to be summed up over the indices i and k for all combinations 11, 12, . . . up to 44. The terms g_{ik} now are not constants, but functions of the coordinates, which are determined by the arbitrarily chosen transformation. Nevertheless, the terms g_{ik} are not arbitrary functions of the new coordinates, but just functions of such a kind of form (2) which can be transformed back again into the form (1) by a continuous transformation of the 4 coordinates. In order this may be possible, the functions g_{ik} must satisfy certain general covariant equations of condition, which were derived by [Bernhard] Riemann [1826-66] more than half a century before the formulation of the general theory of Relativity (“Riemann condition”) [Curvature of spacetime]. According to the principle of equivalence, (2) describes in general covariant form a gravitational field of a special kind, when the functions g_{ik} satisfy the Riemann condition.”

“It follows, the law for the pure gravitational field of a general kind must be satisfied when the Riemann condition is satisfied; but it must be weaker or less restricting than the Riemann condition. In this way the field law of pure gravitation is practically completely determined, a result which will not be justified in greater detail here.”

“We are now in a position to see how far the transition to the general theory of Relativity modifies the concept of space. In accordance with classical mechanics and according to the special theory of Relativity, space (spacetime) has an existence independent of matter or field. In order to describe at all that which fills up space and is dependent on the coordinates, spacetime or the inertial system with its metrical properties must be thought of at once as existing, for otherwise the description of ‘that which fills up space’ would have no meaning.”

“If we consider that which fills space (e.g. the field) to be removed, there still remains the metric space in accordance with (1), which would also determine the inertial behavior of a test body introduced into it.”

“On basis of the general theory of Relativity, on the other hand, space as opposed to ‘that which fills space’, which is dependent on the coordinates, has no separate existence. Thus a pure gravitational field might have been described in terms of the g_{ik} (as functions of the coordinates), by solution of the gravitational equations. If we imagine the gravitational field, i. e. the functions g_{ik} , to be removed, there does not remain a space of the type (1), but absolutely nothing, and also no ‘topological space’. For the functions g_{ik} describe not only the field, but at the same time also the topological and metrical structural properties of the manifold. A space of the type (1), judged from the standpoint of the general theory of Relativity, is not a space without field, but a special case of the g_{ik} field, for which [for the coordinate system used, which in itself has no objective significance] the functions g_{ik} have values not dependent on the coordinates.”

“There is no such thing as an empty space, i.e. a space without field. Spacetime does not claim existence on its own, but only as a structural quality of the field.”

“Thus [Rene] Descartes [1596-1650] was not so far from the truth when he believed he must exclude the existence of an empty space. The notion indeed appears absurd, as long as physical reality is seen exclusively in ponderable bodies. It requires the idea of the field as the representative of reality, in combination with the general principle of Relativity, to show the true kernel of Descartes’ idea; there exists no space ‘empty of field.’”

Generalized Theory of Gravitation

“The theory of the pure gravitational field on the basis of the general theory of Relativity is therefore readily obtainable, because we may be confident ‘field-free’ Minkowski space with its metric in conformity with (1) must satisfy the general laws of field. From this special case the law of gravitation follows by a generalization which is practically free from arbitrariness. Further development of the theory is not so unequivocally determined by the general principle of Relativity; it has been attempted in various directions during the last few decades.” [Without success.]

“It is common to all these attempts, to conceive of reality as a field, and moreover, one which is a generalization of the gravitational field, and in which the field is a generalization of the law for the pure gravitational field.”

“The generalization can be characterized in the following way. In accordance with its derivation from ‘Minkowski space’, the pure gravitational field of the functions g_{ik} has the property of symmetry given by, $g_{ik} = g_{ki}$ ($g_{12} = g_{21}$, etc.). The generalized field is of the same kind, but without this property of symmetry. The derivation of the [Reality] Field is completely analogous to that of the case of pure gravitation less symmetry.”

“After long probing I believe I have now [June 9, 1952] found the most natural form for this generalization, but I have not yet been able to find out whether this generalization law can stand up against the fact of experience.”

“The question of the particular field law is secondary in the preceding general considerations. At the present time [1952], the main question is whether a field theory of the kind here contemplated can lead to the [unification] goal at all. By this is meant, a theory which describes exhaustively physical reality, including 4D space, by a field. The present day [1952] generation of physicists is inclined to answer that question in the negative.”

“In conformity with the present form of the quantum theory, the present-day [1952] generation of physicists believes the state of a system cannot be specified directly, [Heisenberg’s Uncertainty Principle-Indeterminacy Principle] but only in an indirect way by a statement of the statistics of the results of measurement attainable on the system. The conviction prevails, experimentally assured duality of nature [corpuscular-wave and Bohr’s Principle of Complementarity] can be realized only by such a weakening of the concept of reality. I think such a far-reaching theoretical renunciation is not for the present [1952] justified by our actual knowledge, and one should not desist from pursuing to the end the path of the relativistic field theory.”

CHAPTER 3 Continued

UNQUOTE: Inserts and editing have been added in the above quote.

The above is a quote from *RELATIVITY The Special And The General Theory* Albert Einstein, Crown Publishers, Inc., Bonanza Books, Appendix V, p154-157 (1961). Also, Encyclopaedia Britannica, Great Books Vol. 56, p242-3 (1990).

Apparently, Einstein did not consider in his thoughts about reality, the other part of a bifurcated Relativity, charge and the electric field, choosing to consider his Reality Field only in terms of some sort of non-symmetric gravity. Later on in this paper, I shall address the very striking different aspects of reality, mass versus charge and gravity field versus electric field viewing them while they are in relative motion in terms of J reactance value added as a function of velocity to show why and how a bifurcation of Relativity occurs.

It struck me as I was reading the above quote for the first time, Einstein's Reality Field being in terms of some sort of non-symmetric gravity, part of the redshift could be attributed to a residual gravity thruout the universe. So after much study, I go into the redshift beginning on page 52.

To derive a resonant, therefore quantum, matrix reality field which I consider is a different view [AC] of an Einstein Reality Field [DC], I propose the use of complex coefficients, based on dipole cyclic phenomena to magnify Minkowski's equation (1) at each of the 4D factors.

Complex magnification makes the ultimate equation of the Quantum Matrix Reality Field non-linear just as Einstein said it would be. Non-linear in the sense resonant dipoles making up the matrix of standing waves are sinusoidal in both time and length, both potential and kinetic dipole virtual energies. Also, two non-linear boundaries would exist between Real Reality and J Reactive Reality, one at each dipole end-nodal virtual black hole horizon, which comes about via amplitude modulation, and, which non-linear boundaries provide for a translocation of sidebands as an explanation for the two types of Relativity, mass and charge based. This establishes an equation (2) foundational basis for tying all *things* together showing a common mechanics, the resonance of Level 1 dipoles in standing waves of a universal matrix.

Such complex amplification of 4D coefficients added to equation (1) to represent all modes of dipole virtual energies allows for **many degrees of freedom** which would include the following 11 mathematical treatments of the coefficients:

1. Relativity generated during translocation;
2. dipole cyclic phenomena;
3. J reactance;
4. longitudinal and transverse AM;
5. parity;
6. Fourier series;
7. mathematical complex phase planes;
8. quantization;
9. bipolar virtual black holes at dipole end-nodes;
10. clipping at event horizons of the bipolar virtual black holes resulting in sidebands;
11. J reactive value added during translocation.

CHAPTER 3 Continued

With the above mathematical treatments of the coefficients of equation (1) in proper place satisfying dipole cyclic phenomena conditions, now make the Lorentz transformations to an equation like (2) and that result now points to a Unified Field Theory: Gravity – Electric Fields and a Unified Mass - Charge Theory at the macrocosmic matrix level. The transformation from equation (1) to (2) then competently describes a physical result via a properly pre-chosen set of equation (1) complex coefficients representing *many degrees of freedom*. Equation (1) modified with proper coefficients is the commonality equation among all *things*. Equation (1) itself, [absent any appropriate coefficients], is not the commonality mechanics equation and does not in and of itself lead to any Unified Theories which Einstein so competently proved in his dying days. This is to say, Einstein’s use of stand alone equation (1) did not lead him to his long sought after Unified Field Theory.

That part of Einstein’s 1952 statement which pointed me to my Level 1 reality field as similar to his Reality Field, was:

“There is no such thing as an empty space, i.e., a space without field. Spacetime does not claim existence on its own, but only as a structural quality of the field.”

To paraphrase in my terms: there is no such thing as spacetime without the quantum matrix reality field of standing wave dipoles at Level 1. This AC aspect does lead to a Unified Field Theory and to quantized fields.

Examples of studies of Level 1 are seeking answers to questions Einstein raised. Are fields supported in a void? If so, how? In the void, are they supported by themselves? Their essence in the void has to be supported by some thing other than themselves, said Einstein, much as some scientists are again saying a century after the ether concept was rejected. I say each type of field is, in and of itself, a unique primary amplitude modulation (AM) on Planck Scale dipoles of a precise-frequency resonant virtual potential and kinetic energies, which dipole virtual energies are a fall-out of dimensional fluctuations natural to nearness of that smallness generated by production of and operation of dipole end-nodal virtual black hole negative feedback which action stabilizes dipole resonance from out of those dimensional fluctuations.

In a setting of the *thing* essence of Einstein’s (1952) Reality Field, the Planck Scale of reality is herein described as a quantized resonant dipole stabilized in frequency, amplitude, bandwidth, from out of dimensional virtual fluctuations via a system of virtual energy checks and balances. This natural checks and balances system results from expansion \ compression of dimensional fluctuations at their peaks which then form virtual bipolar Schwarz and Green virtual black holes at dipole end-nodes and which black holes absorb great magnitudes of expansion \ compression virtual energies beyond that needed to generate the virtual black hole event horizons. This produces a negative feedback, a dampening of fluctuational virtual energies, resulting in a most precise frequency of dipole resonance thruout Level 1.

CHAPTER 4

PLANCK CONCEPTS AND THE AUTHOR'S

Planck formulated a number of concepts:

Planck's constant (h) about $6.6260755 \times 10^{-34}$ Joule-sec

Planck's quantum (hv) with ν = frequency

Planck's density (d) = $[|c|^5 \div hG^2]^{1/2}$ about 1.84×10^{108} Kg m⁻³

|c| = velocity of light Level 1 about 2.997924562×10^8 m sec⁻¹

h = Planck's constant

G = gravitational constant about 6.67259×10^{-11} m³ sec⁻² Kg⁻¹

Planck's mass (m) = $[h|c| \div G]^{1/2}$ about 5.456×10^{-8} Kg, or about 10^{28} ev

I apply some of Planck's equations directly to Level 1 dipoles:

(3) Planck's length (L) = $[Gh \div |c|^3]^{1/2}$ about $4.0508332 \times 10^{-35}$ m

(4) Planck's time (t) = $[Gh \div |c|^5]^{1/2}$ about $1.8257753 \times 10^{-43}$ sec

Ancillary to L and t, is a precise dipole resonant frequency which could be called:

(5) Planck's frequency = $|c| \div 2L = |c| \div 2[Gh \div |c|^3]^{1/2}$ about 3.7003802×10^{43} Hz.

Because of dipole resonance, Planck's frequency is used in my paper as f_{carrier} which is modulated by 12 unique amplitude modulations. Wavelength is measured from trough to trough of dipoles on a standing wave, not in-between virtual bipolar black hole event horizons, which changes with intensity of AM.

In Level 1 terms, Planck's quantum for dipole frequency is:

(6) $E_{\text{gen}} = hv = hf_{\text{carrier}} = h|c| \div 2[Gh \div |c|^3]^{1/2}$ } about 2.4518999×10^9 Joule.

My paper claims a distinction between a generalized dipole frequency-derived quantum E_{gen} and a special case individual dipole based quantum:

(7) $E_{\text{sp}} = E_{\text{dipole}}$.

When we speak of dipole quantum, we must address the subject as viewing virtual energies, potential and kinetic in $1/2$ cycle length of dipole resonance. E_{gen} is a summation of individual dipole quantum, E_{sp} .

Equation (6) deals only with Planck's generalized quantum E_{gen} . To arrive at the special case of a quantum of a single dipole:

Take (6) $E_{\text{gen}} = hf_{\text{carrier}}$ about 2.4518999×10^9 Joule, convert Joule into meter-kilogram, then, convert:

(7) $E_{\text{sp}} = E_{\text{dipole}}$ about 2.5498849×10^{42} Kg over 1 dipole $1/2$ cycle length.

CHAPTER 4 Continued

Since (7) quantum of a single dipole represents total energy over a length of 1 dipole, this fact translates [$E_{sp} = E_{dipole}$] into a total RMS E for the single dipole consisting of two equal RMS energies, potential and kinetic phased 90° apart.

To split total RMS E into RMS potential energy [stress energy for a dipole's two ends], divide by $[2]^{1/2}$, then to get peak $E_{potential}$ energy, multiply by $[2]^{1/2}$. Remember potential and kinetic energies are phased 90° .

The result of translation is in terms of total $E_{dipole}E_{potential}$ peak stress, making:

(8) Total $E_{dipole}E_{potential}$ energy peak<>dipole [two ends] peak stress about 2.5498849×10^{42} Kg.

To get one end stress of a given dipole, divide (8) by 2 making one end peak stress from within a single dipole = $1/2$ (8) equals about:

(9) $1.27494245 \times 10^{42}$ Kg for the single dipole single end-node compression with simultaneous expansion at the other end-node of a minus (9).

But, it takes fore and aft adjacent dipoles end to end 180° out of phase in the system of checks and balances of Level 1 to form the standing wave equilibrium. Looking thru one end of a standing wave dipole to the adjacent beginning we then multiple (9) by 2 to give (8) again. Equations (8) and (9) are somewhat in agreement with Schwarz and Green tension at about 10^{42} Kg. While (8) and (9) were derived from Planck's quantum non-Relativity concepts, Schwarz and Green derived their said result using Relativity. These, are partially where I get supposed confirmation of my concept of dipoles joining quantum mechanics and Relativity. Hereinafter, I shall use (9) in any precise calculations, otherwise shortened to about 10^{42} Kg.

We shall need these quantum concepts of individual dipole fixed dual energy units and the checks and balances system to explain propagation of step quantized EM radiation field and why it takes 7 wavelengths of radiation to settle into an approximate 0° phase relationship between the electric field and magnetic field which start out from the source phased 90° apart. I get into this in EM Radiation later.

These above explanations of quantum, relative to the dipole, begins a proposed explanation why all *things* exist in a bifurcation of reality step quantized, and when translocation is involved, are in a state of bifurcated Relativity, one form or the other attributed to which of the two families of primary AM is involved in the translocation, mass or charge. It can truly be said, *no thing* at the Planck Scale is at-rest and because it is not, we have *some thing* in our macrocosmic reality, even in the void of space. Einstein called reality a Reality Field. In my view, every aspect of his Reality Field is quantized because, in my view, there can be shown a relationship between his Reality Field and my cyclic phenomena of dipoles themselves quantized.

Quantization at the very small involves resonances, standing waves, interference patterns, primary and secondary AM, translocation, and parity. My quantum matrix reality of Level 1

CHAPTER 4 Continued

resonant dipoles is a modification of an Einstein Reality Field.

1. Our Real Reality [the 1st part of a bifurcation of reality], Level 1, is that portion of quantized dipoles remaining outside of dipole virtual bipolar black holes at dipole end-nodes; and,
2. The *J* Reactive Reality [the second part of bifurcation of reality], Level 4, is that portion of quantized dipoles inside of dipole end-node virtual bipolar black holes associated with AM. No AM of Levels 2 and 3, equals no Level 4, just Level 1.

Not only is length-time quantized but so is direction, 10^{43} step directions from each and every virtual black hole at each dipole end-node. Space quantization for example leading to electron magnetic quantum number. Any change of primary AM at the Levels 2, 3, producing changes in Level 4, occurs in precise increments, from step one quantum to maximum quantum step entering a stellar black hole event horizon.

Granted, the incremental energy values are extremely tiny, yet, if fractional incremental energy steps that tiny were somehow attempting to take place, the checks and balances system attempts to suppress them in negative feedback just as if any given dipole itself attempted [via dimensional fluctuations] to become out of synchronization with the rest it would be brought back into sync with all other dipoles thru action of end-nodal virtual black hole stabilization and synchronization.

This synchronization mechanics is analogous to standing de Broglie electron waves in the atom which can only exist synchronized in specific orbits due to a unique set of checks and balances precisely configuring the electron wave orbit. It has to do with de Broglie standing waves which if out of sync [for example an encounter with a passing electron or impinging photon causing a change in orbital energy], for a specific orbit, will reconfigure to a precisely correct number of waves for that orbit making or taking a precise photon in the process.

That science, such as the excimer tunable ultraviolet laser, is the basis for many things such as a precise uranium isotope separated from uranium hexafluoride, genetic engineering, separation of heavy water from normal water, and laser spectroscopy.

To do a direct extrapolation, from the visual macrocosm to the very small of the Planck Scale without inclusion of resonant dipoles at the end, results in fatal errors.

A few such fatal errors, if direct extrapolation is carried out without dipoles, are: ambiguities, zeros, infinities, failure to identify cause of and justification for time dimensional progression forward, time dilation, and with many conflicts such as alleged hidden or curled dimensions.

The closest means to qualitatively verifying much of my paper's dipole concepts appears to be mathematics.

CHAPTER 5



QUANTUM STEP AMPLITUDE MODULATION

Primary amplitude modulation [AM], said herein to occur in steps from step one up, refers to 10^{43} steps, in quantum step increase or decrease in total Planck Scale dipole virtual resonant energy existing in our reality and in a *J* Reactive Reality at dipole end-nodes. Each quantum step is related to the quantum of $\frac{1}{2}$ cycle of dipole energy.

Each of the 10^{43} AM steps are synchronized with the dipole resonance, unable to change steps in any fraction of the dipole cycle due to the checks and balances system. Since the dipole is quantized so are all AM steps. What we view as *things* compounding a QUANTUM MATRIX REAL REALITY FIELD, Level 1, are manifestations of AM. Various AM explains Levels 2, 3, and 4 of QUANTUM MATRIX REALITY in terms of what is real and what is *J* reactive.

There are herein said to be a longitudinal primary AM mass family of five unique mathematical types; and, a transverse primary AM charge family of five unique mathematical types. Two additional primary AM mathematical types account for such *things* as chirality and field direction vectors.

LONGITUDINAL PRIMARY AM **THE MASS FAMILY CONSISTS OF:**

1. at-rest gravity field;
2. translocating gravity field;
3. At rest mass;
4. translocating mass;
5. acceleration.

The mass family is value added longitudinally to each N-L-N of longitudinal dipoles in a standing wave as per Figure 3.

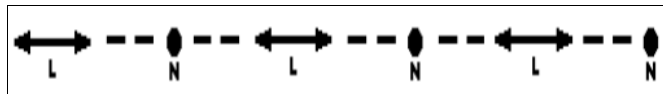


Figure 3

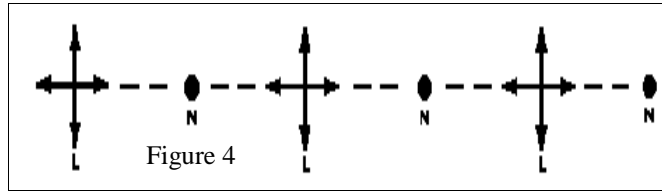
Example of longitudinal AM on longitudinal Planck Scale dipoles is an at-rest gravity field formed at Level 2.

CHAPTER 5 Continued

TRANSVERSE PRIMARY AM
THE CHARGE FAMILY CONSISTS OF:

1. at-rest electric field;
2. translocating electric field;
3. magnetic field;
4. at-rest charge;
5. translocating charge.

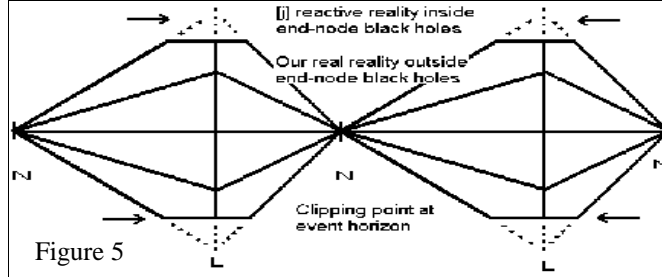
The charge family is value added transversely to each L of longitudinal dipoles in a standing wave as per Figure 4.



Example of transverse AM on longitudinal Planck Scale dipoles is at-rest electric field formed at Level 2.

ANGLE PRIMARY AM

Angle modulation is value added to other modulations as in Figure 5.



Example is gravitational field horizontal displacement of “L” relative to “N” is a function of intensity of angle AM. The leaning of the dipole is in the direction of gravity lines of field force.

This produces directional data [space quantization]. Space quantization takes place within the virtual bipolar black holes in *J* Reactive Reality.

TORSIONAL PRIMARY AM

Torsional AM is associated with chirality as in Figure 6.

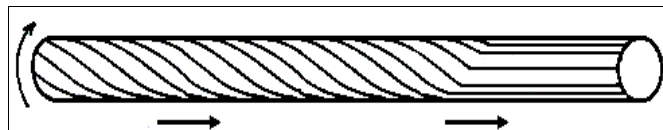


Figure 6

CHAPTER 5 Continued

Chirality is a technical term for system or object said to possess definite left or right handedness, curvature of lines of field force, translocation in curves, and spin, are results.

Example is where the dipoles have rotated under torsional value added to other modulations.

J REACTANCE

Equation (1) establishes beginnings for unification of fields, mass, and charge as a macrocosmic matrix of Planck Scale resonant dipoles in standing waves. The equation when properly modified, ties together length and time by their fitting in with a precise frequency dipole resonance, primary AM, *J* reactance, and other mathematical treatments, such as mathematical complex phase planes, contained in appropriate mathematical coefficients of each factor.

How so *J* reactance? In the Minkowski 4D macrocosmic spacetime void equation (1), a most significant [-] sign for time, the fourth factor, becomes **extremely** important in my paper. It ties together, time dilation, time uniform progression forward via a natural odd-parity.

The originating Minkowski 4D equation contained in the time factor a [+] multiplying an imaginary coefficient, [*i*], where [*i*] = $(-1)^{1/2}$ which when put into the squared and summed differential version, equation (1), the [*i*] became a [-] sign. [+] x [-] = [-].

50 years ago while studying Electronic and Electrical Engineering [first at College of San Mateo then at CalPoly], in reviewing evolution of equation (1), I came to wrongly think maybe, one could directly substitute *J* reactance for imaginary [*i*] of the time factor in the originating equation. Unfortunately, I had no success. I did not then visualize a connection with dipole cyclic phenomena at the very small which thereby could have allowed *J* reactance to modify coefficients of all four factors to allow translocation and Relativity then perhaps on to a complex field theory.

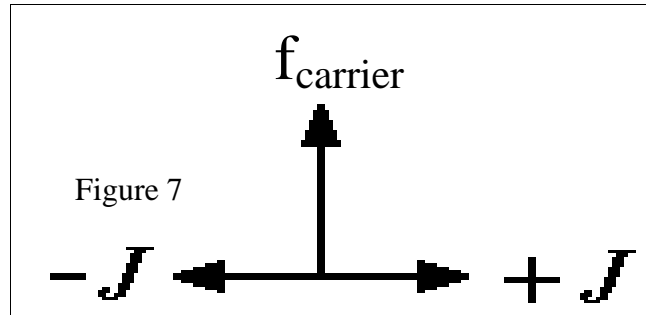
Via considering dipole cyclic phenomena inserted into equation (1) the [-] time factor now has odd-parity involvement. This is to say, dipole time has a [-] sign, so there is an odd-parity of the time factor resulting in time dimensional progression forward each 1/2 cycle reversal of dipole oscillations rather than average-wise standing still as length does. Mind you, this takes place at Level 1 as the commonality of all four Levels.

I make use of the *J* operator, from Electronic and Electrical Engineering, to indicate a factor in an equation contains an expression of reactance via appropriate coefficients. *J* reactance can be viewed either macrocosmic or Planck Scale. *J* reactance at the macrocosmic denotes value added to original **without** the need for consideration of dipole cyclic effects for a first approximation. Whereas at the Planck Scale, *J* reactance denotes value added to original **with** the need to consider dipole cyclic phenomena.

***J* reactance operators are not imaginary.** They can be visualized at the Planck Scale of dipole cyclic effects as a 90° phase vector to another phase vector. Phase in this case is in relationship to cyclic phenomena of the dipoles.

CHAPTER 5 Continued

For example: In Figure 7, $\pm J$ reactance is associated with 90° phase lead [$+ J$] or 90° phase lag [$- J$] from that of f_{carrier} .



A word on visualization of resonant dipoles in the presence of modulation in terms of Real Reality and J Reactive Reality. Our Real Reality macrocosmic dimensions of time and space are as a measure of a matrix of dipole virtual energies summed along each dipole between event horizons of end-nodal virtual bipolar black holes. Ancillary thereto, the void in-between adjacent dipoles laterally is without form, reality field, or virtual energy and plays no part in these studies. This is because the distance between adjacent lateral dipoles is much less than is necessary for existence of form, reality field, or virtual energy. It is the Real Reality part of dipoles themselves which make up that Real Reality matrix. By visualizing this Real Reality matrix, one can also visualize virtual bipolar black holes inside their event horizons as constituting J Reactive Reality which could be thought of as a second matrix, a J reactive matrix which if seen from inside, that matrix would appear to occupy an all in one virtual bipolar resonant black hole, *the* singularity but as if it were the size of all of the universe. One sees what is to be seen from where the seeing takes place; inside or outside virtual black holes or stellar black holes for that matter.

Dipole time forward progression can be visualized as a function of odd-parity, intensity of gravity, intensity of other fields beyond a certain threshold, and Relativity, all of which depend on whether viewed at macrocosm or Planck Scale. Even tho time in a dipole is in resonance, as is length, there is a significant difference attributed to this matter of parity as to how to graphically display and to view time dilation as a function of gravity and Relativity.

For purposes of 2D graphing time dilation, J reactive time value added to original, in the presence of the at-rest gravity we pass thru [as say a trip to the stars], we resort to an even-parity display looking similar to gravity in translocation but where axis Z is rotated at a minus angle, *phi*.

For purposes of a description of dipole cyclic time dilation, we resort to time's Planck Scale odd-parity. The difference between these seeming contradictions is because J reactive time value added to original time requires we not include cyclic phenomena in our 2D graph which is drawn as tho at the macrocosm level, and for that display we rely on even-parity.

Whereas, if we include cyclic effects of time, we now are in a dipole cyclic description mode at the Planck Scale level requiring odd-parity. See rotation of Minkowski's axes beginning at page 62.

CHAPTER 5 Continued

Time accuracy, on a practical level, is a function of our ability to make measurements of time in the macrocosmic matrix which depends on our ability to produce resolution which is rather poor at the present compared to Planck Scale of 10^{-43} second.

From our macrocosmic view because of a lack of resolution, time measurements are an average of unseen Planck Scale dipoles. [See Heisenberg indeterminacy principle and apply it to time.] Presently, we can not resolve measurements of time into 10^{43} increments per second which would be needed to actually analyze time of Planck Scale dipoles. However, we can mind's eye visualize events taking place at that incremental shortness of time.

In the Planck Scale dipole, the 2-dimensional length-time are both in resonance existing together in the dipole. While length oscillation reflections from dipole end-nodes, at their virtual bipolar black hole event horizons, are even-parity, time oscillation reflections are odd-parity. This odd-parity aspect of time is derived mathematically from Minkowski's equation (1) at $[-] dt^2$, when the equation is modified to include dipole cyclic phenomena.

Dipole time resonance odd-parity is not to be confused with the odd-parity of the transverse charge family of AM, no more so than dipole length resonance even-parity is to be confused with the even-parity of the longitudinal mass family of AM.

Longitudinal odd-parity of dipole oscillating time gives rise to the phenomena of forward progression of time each $\frac{1}{2}$ cycle of the dipole as if in a continuous sequential summation whereas even-parity of dipole length gives rise to repeating the same dipole length over and over again, hence no summation.

Mere speculation: **Length odd-parity may have existed at our big bang and could describe the explosive nature of our initial universe for a brief period, until length went back to its normal even-parity. The odd-parity aspect could have been a product of the singularity [the J Reactive Reality of the previous universe] from which our big bang is alleged herein to have emerged.**

For a Level 1 dipole to become a full cycle virtual bipolar black hole within the event horizon of a stellar black hole, the maximum step primary AM quantum would equal individual Level 1 dipole quantum of step one primary AM. The stellar black hole event horizon stress is then a sum of quantum for Level 1 dipole (8) plus the last step primary AM quantum also (8). Stellar black hole event horizon stress then becomes:

$$(10) = 2(8) = 2 \text{ dipole } E_{\text{potential}} \text{ energy peak} - 2 (\text{Dipole end peak stress}) \text{ about } 2(2.5498849 \times 10^{42} \text{ Kg}) \text{ for about } 5.0997698 \times 10^{42} \text{ Kg.}$$

This is in somewhat agreement with some estimates for stress at the event horizon of a stellar black hole.

As a function of step primary AM upon the dipole length-time oscillations, for example gravity, just as length is clipped, time is also clipped, meaning time stands still as viewed in our Real

CHAPTER 5 Continued

Reality for a portion of dipole cycle, forming a step quanta time dilation function; and also, when the electric field [or magnetic field] is beyond its certain threshold for interaction [an extreme intensity].

It could be proposed, time, while thought of as a real fourth dimension, is not like the three real physical dimensions. Supposedly, real time is not volumetric, having only 1 real dimension.

While length-time resonates in the dipole, each $\frac{1}{2}$ cycle length does not add to each previous $\frac{1}{2}$ cycle length because upon reflection at a dipole end-node the length oscillation goes back to the previous end-node [via even-parity reflection]. In Level 1, altho time co-varies sinusoidally with the resonant length dimension, each $\frac{1}{2}$ cycle time adds to each previous $\frac{1}{2}$ cycle time [via odd-parity reflection].

While to us in our macrocosmic reality time progresses forward as if un-varying, time at the Planck Scale size is part of the dipole resonance, where time has a quantum relationship to that of dipole quantum and to primary AM quantum.

In other than Level 1, light speed is measured at less than $|c|$. And, we assume length decreases and time increases in the presence of a gravity field, but why? Via modifying Minkowski's 4D equation (1), we see if we were to shorten the real portion of a dipole [(minus) x (plus) = minus], we would lengthen time [(minus) x (minus) = plus].

In the classical Cartesian system of coordinates, the three real physical dimensions are related to each other by 90° in a volume of macrocosmic space. Supposedly, none of our real physical dimensions are reactively related to each other at Planck Scale length-time so therefore their math presentations do not of themselves contain the J operator, even tho they are related by 90° . That is because in the three real physical dimensions, the 90° is physical not dipole cyclic phased. J reactance is cyclic based. In translocation, dipole AM sideband components cyclic phased are J related. Apparently, no such sort of volumetric reality exists for time. Time, while a Real Reality dimension outside of black holes, allegedly can be step modulated becoming cyclic partly associated with J Reactive Reality inside dipole virtual black holes just as length can. But keep in mind the [-] sign for time in equation (1).

So far, I have found no $\pm[J_{y \text{ or } z}]$ phase operators associated with time, which if they do exist would pose some very interesting effects. Volumetric reactive time would result, suggestive of J reactive parallel universes, but then look inside a stellar black hole! What do we find? Perhaps the makings of a beginning and an end to many parallel universes as parts of many cycles of their existence.

In 1913, Niels Bohr (1885-1962) proposed a quantum theory of the hydrogen atom. This began an era of quantum mechanics which has extended to today. Bohr won the Nobel Prize in 1922 for his efforts.

At that time, quantum mechanics envisioned the atom as a small solar system with a core like the sun surrounded by electrons in orbit like planets. Bohr's math seemed to fit, at least for the

CHAPTER 5 Continued

hydrogen atom.

Because of de Broglie and his electron \ wave equivalent, together with the Pauli exclusionary principle, we now envision the electrons in orbit as rings of standing wave energy instead of hard orbiting planetary particles.

We also now envision the nucleus of the atom as composed of particles within nucleons each as bundles of energy each composed of quark \ wave bundles mutually in orbit around a common center of gravity of said nuclear particle. Again, de Broglie waves, Pauli's exclusionary principle, and resonance, prevail as suggested by very high energy accelerator experiment interpretations. From this system can be emanated a variety of particles and photons which depend upon a variety of happenstances in the atom.

When Planck's quantum theory matured into quantum mechanics and attempts were made unsuccessfully to quantize Relativity, Einstein rebelled. His rebellion was not against quantum mechanics, per se, but against efforts of the Bohr clan to discredit his Relativity. Some Bohr clan scientists said Relativity, and gravity defined within Relativity's curvature of space, were unquantizeable. **I most strongly disagree.** I think his rebellion can now be viewed as justified. Relativity and quanta are simply two divergent views of nature's dipole commonality mechanics.

A great debate has lasted nearly a century over which concept is correct; Relativity versus quantum mechanics. **They are both correct**, emanating from nature's common mechanics, Level 1 dipoles. **So say I.**

Those who followed Relativity, and those who followed quantum mechanics, constantly argued in the 1920's as to who was right. The scientific community falsely [my expression] assigned Bohr correct, largely due to his winning the Nobel Prize, restricting Relativity mostly to observations of the macrocosm, because gravity, said by the Bohr clan, was impossible to quantize. The argument actually lasted so very long due mainly to so very many critics of the scientific community's failure to join the two concepts into one. An attempt was made with gravitons but none have been observed, and, Superstrings is a promising attempt. Hopefully, my concepts will put an end to this century old bickering leading all of us in the same direction—knowledge.

Einstein indicated, one day we would have the ability to fit things together. [That is my hope.] That ability began to take shape in the 60's - 80's with symmetry, supersymmetry, strings, then Schwarz and Green Superstrings, each concept as a starting point to a then newer vogue, a much clearer and better understanding of nature at any size as viewed from the very small. Now, with my paper, take another hard look at nature.

Superstrings may not be a complete answer to every thing but Schwarz and Green damn sure have done wonders to redirect thinking the past few decades. Without their works, for example, I probably would have gotten no where with this paper, as with others and their attempts at a theory of everything. The scientific community must give them credit they so justly deserve.

CHAPTER 5 Continued

My idea of a slower larger macrocosm not revealing a swallowing of Planck Scale dimensions of length and time into virtual bipolar black holes at dipole end-nodes as a function of added unique primary AM, I got from studying the arguments of Einstein [with his Relativity and his Reality Field] and Bohr [with his quantum mechanics] in a setting of studies of Schwarz and Green Superstrings theory of the very small, Planck's quantum, Minkowski's spatial axes rotation, and de Broglie's wave mechanics.

According to Einstein, Relativity could not form a basis for quantum mechanics. According to Bohr, quantum mechanics could not form a basis for Einstein's curvature of length-time, to his Relativity, to his application of what is known as the FitzGerald-Lorentz [length] contraction of a translocating length along its x axis, longitudinally [not transverse], and to the Lorentz [translocation] mass equation. How does one quantize a Relativistic equation, it was asked? It was said by questioners in self-answer, Relativity is continuous not discrete. I am sure, based upon my studies, Relativity is quantizeable as are fields.

The Relativistic macrocosmic Lorentz mass generalized equation used by Einstein in his Relativity is:

$$(11) M = M_0 \div [1 - (v \div c)^2]^{1/2}$$

Bohr of course had his set in his ways concept of quantum mechanics with which he was said to be able to explain most of everything, that is, until he was confronted by Relativistic equations, by Einstein, and Relativity. Bohr could not quantize Relativity and it bothered him immensely, privately that is. In public, Bohr simply criticized Einstein for being wrong because, Bohr said, Relativity and gravity could not be quantized.

Einstein's Relativity is now assumed correct thruout the scientific community for cosmology and gravity but is still isolated from quantum mechanics which are said by many to only apply to the other three forces of nature.

However, Einstein's precise form of envisioned gravity field may not be so precise and in fact may be quantizeable after all just as Bohr wanted. Yes I say, gravity is quantizeable because it involves AM of the resonant quantum dipoles, upon which its simplistic longitudinal primary AM [gravity] takes place as we shall see in At-rest Gravity, beginning at page 40. Relativity is merely an extension of my concept applicable to translocation of primary AM sideband components, including those of gravity.

Thus, the four forces of nature can be quantized, I claim, and can be related to each other, and to mass, charge, and energy thru the observations of quantum resonances of Planck Scale dipoles. My paper brings Einstein's macrocosmic Relativity down to the Planck Scale arena of dipoles, its modulation, and quantization. If only Einstein had thought of the Planck Scale we would probably be 50 years ahead of where we are now.

CHAPTER 6



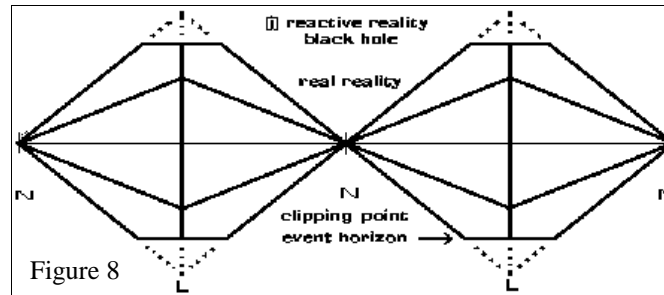
FIELDS

As between Level 2 amplitude modulations representing gravity and electric fields, the commonality mechanics is Level 1.

Criteria to be met in analyzing at-rest field activity of dipoles in standing waves are:

1. f_{carrier} , of all dipoles is precise at any level of any primary AM outside a stellar black hole;
2. all longitudinal standing waves of dipoles maintain their troughs the same Planck length distance apart regardless of level of any primary AM outside a stellar black hole;
3. point virtual bipolar black holes of Level 1 turn line with a step function amount of any combination of reactive or non-reactive primary AM. The two virtual bipolar black hole event horizons of a given dipole move in step lengths toward that dipole center as a step function of longitudinal primary AM intensity;
4. our real length, L , left outside the virtual bipolar black holes decreases as a linear step function of non-reactive longitudinal primary AM and is herein said to be associated with our macrocosmic matrix interpretation as being gravity;
5. intensity of compression \ expansion stress of about 10^{42} Kg occurs at event horizons of dipole virtual bipolar black holes. Compression occurs at one dipole virtual black hole event horizon having a plus sign and expansion at the other with a minus sign. With the next $\frac{1}{2}$ cycle, the signs reverse;
6. resonant dipole bipolar potential virtual energies at opposite event horizons is totally transferred into bipolar virtual kinetic energies at the dipole mid-center where potential is zero and plus and minus kinetic cross over to the opposite $\frac{1}{2}$ length-time thereupon the potential energies build in opposite polarity as kinetic reduces. We will see this picture is not true for odd-parity of the electric field because of transverse motion effects;
7. our real time, t , increases as a step function of non-reactive primary AM of the dipole outside virtual bipolar black holes;
8. velocity of light decreases as a step function of primary AM outside a stellar black hole;
- 9a. gravity primary AM is associated with clipping at the event horizons of dipole virtual black holes and a J reactive swallowing into virtual bipolar black holes some of our reality length-time, making length shorter, time longer, and velocity of light, less;
- 9b. associated with gravity primary longitudinal AM [absent angle AM] are two standing waves being clipped at the virtual bipolar black holes in Figure 8;

CHAPTER 6 Continued



10. virtual energy reflections and clipping action on dipole resonances are associated with non-linear zones of virtual black hole event horizons which clipping is associated with a wide spectrum of primary AM sideband components. It is these primary AM sideband components associated with clipping which appear to travel during translocation of field virtual energy;

11. there is a difference between dipole end-nodal reflections of longitudinal versus transverse. This is the beginning explanation of what is called parity. There is a 180° phase difference in the two types of parities making longitudinal an even-parity with transverse an odd-parity. These differences form the very foundations between the various fields and enter in the mathematics of both at-rest primary AM and translocating primary AM sideband components.

These are studied later. Suffice to say, parity plays a vital role in composition of fields, charge, and mass.

In my paper, a J coefficient of an equation factor is viewed two principal ways:

1. From a macrocosmic view;
2. From a Planck Scale view.

From the macrocosmic view, J coefficient is an expression of value added to original as a result of, for example, increased translocation velocity. That is, an accumulated value added as a function of increased velocity, decreases back to zero at zero velocity. A storage of value added thus takes place under the J .

From a Planck Scale view, $\pm J$ reactance is associated with 90° phase lead $[+J]$ or lag $[-J]$ from that of the f_{carrier} . J applies to reactance, a storage of virtual energy. It is 90° phase lead or lag related to the dipole resonance frequency, f_{carrier} , and, to the virtual bipolar black holes, and is an expression of step quantum value added to dipole original resonance quantum as a result of increased translocation, for example.

Einstein was unhappy with $[i]$ imaginary numbers saying at one time, “I do not believe in imaginary numbers”. But so-called imaginary numbers by another expression $[J]$ are real from the stand-point of effect. Hence in my paper, imaginary numbers are not imaginary but represent reactance of a complex equation. To distinguish reactance from an $[i]$ imaginary number, I use J operators from Electronics and Electrical Engineering instead of $[i]$ from math.

The below section deals with other than Level 1, which are Levels 2, 3, and 4, associated with combinations of 12 types of primary AM. These higher virtual energy level dipoles no longer

CHAPTER 6 Continued

look like Level 1 dipoles. Dipoles at these other levels consist of two parts, a viewable Real Reality 1st part of bifurcated reality, which is a decreased reality length simultaneously with an increased reality time, and non-viewable J Reactive Reality part [virtual bipolar black holes at dipole end-nodes], Level 4, the second part of bifurcated reality. A J reactive length-time is associated with primary AM forming end-node virtual bipolar black holes consisting of a plus virtual black hole at one end [compression] and a minus [expansion] simultaneously at the other end which alternate each $\frac{1}{2}$ cycle.

Above, we saw Level 1 of our reality contains none of the 12 primary AM. All existential fields are herein said to exist at Level 2 of our reality. Charge and mass are said to exist at Level 3. Level 4 are virtual bipolar black holes said to form in quantized steps under primary AM conditions of Levels 2 and 3. The inside of a virtual bipolar black hole is said to exist in a second part of reality, not our Real Reality but a J Reactive Reality, a subspace, *the* singularity. This expression will be repeated many times with each time aiming to further clarify.

Position on the dipole of end-node virtual bipolar black hole event horizons are associated with increasing primary AM moving the impact event horizon point of Schwarz and Green virtual black hole stress value, about 10^{42} Kg, away from the two Level 1 dipole end-nodes towards the trough - center of the dipole decreasing our Real Reality length and increasing our Real Reality time, as we see it. What dipole length-time virtual energies are clipped and left stranded at each of the end-nodes are to be found J reactively inside the event horizon of the J reactive virtual line black holes, one at each end and constitute the second part of reality, the subspace, *the* singularity.

Length, time, and velocity of light, are all modified by primary AM. In equation (5), above, Planck's frequency becomes the frequency carrier, f_{carrier} , upon which step primary AM takes place. Steps are in relationship to the dipole $\frac{1}{2}$ cycle.

From the theory of AM, comes the concept, at less than 100% AM, the carrier wave is unaffected by AM, and sidebands are associated with a function of AM. Thus, the quantum of the originating Level 1 dipole resonance is unaffected by primary AM.

However, in the case of Levels 2 and 3, the primary AM occurs at the same frequency as the carrier, adding a step quantum to the unaffected Level 1 quantum only during that portion of the resonance where potential energy has not reached about 10^{42} Kg, of our Real Reality. At the point of resonance when the potential energy reaches about 10^{42} Kg, we now are looking at the event horizon of the virtual black hole causing production of sidebands due to the rectilinear character of the event horizon. In this case, primary AM becomes a step increase in carrier frequency energy in our Real Reality with sideband production only taking place at the event horizons. The picture changes as a result of translocation where the sidebands seem to originate from an AC modulating virtual energy. The creation of translocation sidebands as AM sideband components is associated with velocity of translocation and with clipping action of the virtual bipolar black hole event horizons and is J reactance based.

CHAPTER 6 Continued

Upon the Level 1 dipole fixed frequency, f_{carrier} , there are alleged to be found two types of primary AM families of five each; longitudinal [mass family]; and, transverse [charge family]; plus one of angle AM [space quantization]; and, one of torsional AM associated with torsional sinusoidal dipole resonance [particle spin]. These 12 unique primary AM of the dipoles are associated with complex harmonic motion resulting in: Level 2 fields; complex on top of complex harmonic motion forming Level 3 charges and mass. These result in a 1st part of a bifurcation of our reality. Level 4 are all insides of dipole virtual black holes seen as a virtual bipolar black hole, *the* singularity, I refer to as subspace, and results in the second part of a bifurcation of reality.

Each $\frac{1}{2}$ cycle of a dipole has a dimensional length sum quantum defined herein as the sum of Level 1 fixed quantum [zero step primary AM quantum in Level 1], plus any higher step primary AM quantum, associated with Levels 2, and 3, with step quantum angle AM forming direction [also space quantization], plus step quantum torsional motion [forming a step quantum of spin]. Also, time is step quantized. Virtual bipolar black holes form at dipole end-nodes as a result of any value of step primary AM, quantized from step one AM energy [Level 1] increasing in increments related to a dipole $\frac{1}{2}$ cycle quantum until the maximum quantum last step is reached crossing into the inside of an event horizon of a stellar black hole. With the presence of primary AM, time is step quantum dilated which means time does not move forward as quickly as in Level 1. Time step dilation evolves from equation (20), at page 62, when the equation includes primary AM, and, other cyclic phenomena as presented in this paper.

Combinations of the above 12 primary AM families, to include angle AM and torsional AM, produce a bifurcation of reality and a bifurcation of Relativity, at the very small. Bifurcation of Relativity is based upon longitudinal primary AM [even-parity] versus transverse [odd-parity] primary AM where parity and J reactance play vital roles in determining which Relativity is in place and why. To arrive at 4D, visualize a matrix of infinite length intersecting length-time dipole standing waves. Intersections form at each and every black hole where there are step quanta of angle and torsional AM forming space quantized direction. All of this in total is seen as the macrocosmic matrix.

AT-REST GRAVITY FIELD

The gravity field is part of Level 2 of our quantum matrix reality. It occurs when Planck Scale dipoles are longitudinally amplitude modulated.

What, why, and how is gravity? Without exception, scientists have never fully answered those hard questions altho many have tried over the centuries? Herein, we shall learn the alleged answers thru the study of *black holes*.

In Level 1, dipoles are stacked in standing waves, the potential energy of a dipole reflects back off of its impact with its adjacent dipole without loss of any kind. This reflection is associated with the checks and balances system. That reflection for longitudinal AM is classified, herein, as even-parity. At Levels 2 and 3, for longitudinal AM, the event horizons of virtual bipolar black holes are associated with a precise dipole potential energy intensity regardless of added

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longitudinal AM.

The result is a diminished dipole oscillation length to appear in our Real Reality with the rest of the length swallowed into virtual bipolar black holes, as *J* Reactive Reality. Some may say this swallowing constitutes a dark matter or dark energy. However, the overall effect for us is a reduction in dimensional length, a stress, causing the gravity effect. [Similar to Einstein's curvature of space and Minkowski's axes rotation.] Angle AM gives to us a direction towards the source of gravity. We will need this information to study *J* reactive gravity associated with acceleration.

At-rest is a popular expression for something at the macrocosmic level not in motion. It is alleged, an at-rest gravity field is associated with longitudinal step primary AM upon Level 1 Planck Scale dipole longitudinal oscillations. Changing of overall dipole quantum to a sum of fixed Level 1 dipole quantum plus Level 2 step primary AM quantum is associated with cyclic forming and unforming of point or line virtual bipolar black holes at dipole end-nodes. Stressful reduction in dimensional length is associated with gravity lines of force in the matrix in the longitudinal direction towards the originating sink by means of angle AM; the 11th type of primary AM. Angle plus the 12th type, torsional AM, gives radius of field curvature.

Experience tells us we can not tell the difference between acceleration *J* reactive gravity and gravity associated with mass; Einstein's Principle of Equivalence which is studied later.

I frequently use the term **black hole**, a common usage expression generally attributed to USA Physicist, John Archibald Wheeler, but, the concept had earlier origins. But my usage herein is mainly confined to virtual black holes at dipole end-nodes.

In the late 1700's, John Michell (1724-1793), an English Astronomer and Geologist suggested light might be affected by gravity.

In a 1798 treatise, French Mathematician Pierre-Simon de Laplace (1749-1827) reasoned if enough mass were added to a star, gravity force of the star eventually would become so great its escape velocity would equal velocity of light. Under such gravity, light would not be able to leave the surface of the star, and it would blink out to become an invisible dark star; a stellar black hole.

In 1916, German Astrophysicist, Karl Schwarzschild (1873-1916), used Einstein's theory of Relativity to calculate if any star were compressed to a size smaller than a certain critical radius, called Schwarzschild radius, the density and gravity force would become so great the star would become a dark star. A spherical surface about a dark star at the Schwarzschild radius is called the event horizon, a surface at which escape velocity just equals velocity of light [this assumes no rotation near the speed of light at the equator]. Schwarzschild stated, the critical radius of a dark star is proportional to its mass. For mass of our Sun, this radius is about 3 km. To find Schwarzschild radius of any other object, divide mass of that object by mass of our Sun and then multiply by 3 km, assuming a linear relationship.

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I add the word stellar to black hole meaning a dark blinked out star, and virtual bipolar to black hole meaning Planck Scale dipole complex harmonic motion exceeding dipole compression \ expansion stress of about 10^{42} Kg.

I think, Einstein was trying to tell us how we might proceed along the way to an ultimate understanding of reality. And, I think he pointed to gravity, Relativity and his Reality Law as beginnings to that understanding, hence I was inspired to create these studies.

GRAVITY FIELD DIRECTIONAL DATA

Direction of a gravity field's lines of force are towards its *J* reactive sink be it a mass or an acceleration and this is allegedly associated with angle AM coinciding with longitudinal stressful reduction of our reality as part of each dipole. Also between the accelerating observer and the *J* reactive sink. It appears as an offset-bias, a leaning of the dipole. We shall see directional data is more complex for the other fields.

AT-REST ELECTRIC FIELD

The electric field is part of Level 2 of our QUANTUM MATRIX REALITY. It occurs when Planck Scale dipoles are transversely amplitude modulation, simplistically.

It is interesting to observe, when a dipole is solely transversely step amplitude modulated, longitudinally generated virtual bipolar black holes do not form at dipole end-nodes until the intensity of transverse AM exceeds a threshold value [100% AM] which must exceed the enormous value of the Level 1 dipole end node potential energy of about 10^{42} Kg. Because dipoles are stacked in standing waves, their end nodes for transverse primary AM are a reflection point as if the end nodes were anchor points at which there is a reversing of transverse oscillation polarity in the reversing transverse wave.

That reflection for transverse primary AM is referred to herein as having odd-parity. The transverse reflection off the dipole's end node occurs regardless of added transverse primary AM up to the threshold. Transversally, at less than the threshold, the result for us is a curving of length-time. The overall result for us is a transversal reduction in dimensional length, causing the effect of an electric field, a stress differing from that of gravity which is longitudinal. Angle AM gives to us a direction along the direction of lines of electric force. We will need this information in regards to studying the electric charge at Level 3.

Michael Faraday (1791-1867), an English Chemist and Physicist, is credited with having suggested the existence of electric fields.

The study of the electric field at Level 2 appears to present a set of investigations of mechanics similar to those for gravity also at Level 2 both of which are allegedly based upon the fundamental foundational Level 1.

With the weakest, step one level, of at-rest electric field, Level 1 is no longer free and empty. Each dipole of Level 1 standing waves now has at each end a non-reactive transverse point virtual bipolar black hole forming and unforming at f_{carrier} . Transverse non-reactive at-rest electric

CHAPTER 6 Continued

field entity is imposed upon the dipole oscillations as one form of primary AM. The dipole allegedly carries [much as an RF carrier in AM carries sidebands] the transverse primary AM of the electric field, sort of side-saddle piggy-back [whereas the longitudinal primary AM of gravity is carried sort of conventional-saddle piggy-back].

The certain threshold for interaction by an electric field is allegedly associated with over-AM, where the transverse primary AM, upon the dipole Level 1 oscillations, exceeds ability of the dipole to maintain its own amplitude and phase relationship to all other dipoles. It can be seen the transverse primary AM would have to be gigantic in order to exceed the dipole f_{carrier} , which if it did occur would create gravity by producing an additional added value in the form of longitudinally virtual bipolar black holes.

The effect of non-reactive transverse virtual bipolar black holes presented by the at-rest electric field is to nearly copy the effect of at-rest gravity which gravity effect allegedly is where non-reactive longitudinal virtual bipolar black holes swallow into J Reactive Reality some of our Real Reality producing a longitudinal stressful reduction of our real length-time. With the electric field, the effect is a non-reactive transverse stressful reduction of our real length-time.

In a way, the electric field and gravity are similar but the electric field does not cause an effect upon gravity on the dipoles until the electric field intensity reaches a certain threshold for interaction to occur, such as on the surface of a mass particle with charge. Experience dictates, a gravity field of any intensity affects any intensity of the electric field [less than the electric intensity for over-modulation] to some finite degree regardless of how small the gravity may be [step one AM].

Discussion of the electric field in translocation cannot be completed without discussing the translation results of that translocation, changing the sign of J operator via odd-parity of the electric field, which then is associated with the magnetic field, but we discuss this later more appropriately in Translocating Electric Field \ Magnetic Field.

Look at the surface of a charged mass particle. A charged mass particle has spin so its centrifugally translocating electric field is associated with a magnetic field. So, one test would be to try our guess to see if at the surface of a charged mass particle, where the electric field is the most intense, it is possible to generate a gravity field. We shall study this in Electric Charge.

We can conclude from use of math, electric field non-reactive transverse stress as primary AM upon dipoles leaves the carrier oscillation stresses effectively the same regardless of:

1. intensity of an electric field, up to the certain threshold for interaction, below 100% AM; or,
2. its translocation from dipole to dipole.

Thus, we see an electric field intensity is not directly affected by longitudinal translocation relative to any observer. [Value added to original electric field as a result of translocation is the magnetic field.]

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It must be noted, however, in the presence of increased gravity there would be less of a dipole's oscillation cycle outside the line virtual bipolar black holes on the standing waves associated with simultaneously less primary AM in the transverse family. The amount of reduction is proportional to gravity and is associated with stress on the dipole. No gravity is generated, nor required, by addition of low enough intensity transverse primary AM representing an electric field.

It is suggested, if matrix reality proves correct upon adequate testing, the theories of Relativity, Reality Field, and quantum mechanics ought to be modified to take these dipole oscillation descriptive factors and effects into account and thus be more of an explanation of nature. That is, classical laws would be more complete.

I have said a gravity field affects EM radiation. Here I say a very strong electric field affects EM radiation at its source in the atom at many orders of magnitude greater than its affecting gravity. That is allegedly due to the electric field and EM radiation field are both transverse primary AM while gravity is longitudinal.

In 1919, Johannes Stark, (1874-1957), German Physicist, won the Nobel Prize for physics for his experiments on a positively charged hydrogen particle stream in electrical discharge tubes. In 1905, Stark had detected a Doppler shift in light emitted by these streams. In 1913, with a strong (about 10^7 volts per m) electric field (the Stark electric effect), he split into a number of symmetrically spaced components, some of which were linearly polarized with photon electric vector parallel to the electric field lines of force, remainder of photons being polarized perpendicular to the direction of the field except when viewed along the field.

Thus, he discovered an electric counterpart to the Zeeman magnetic effect we will study later.

Stark and Zeeman effects, as regards Planck Scale, amount to multiple sidebands of emitted photons, a result of primary AM by the electric or magnetic fields upon the de Broglie electron standing wave which changes to a lower energy level, that is, the standing waves rearrange themselves to the new lower orbit and are modulated by the field at that time. In those cases, the photon itself is the frequency carrier with Stark electric or Zeeman magnetic forces as a medium of AM producing sidebands.

The sum total [photon quantum plus sideband quanta] is related to a matrix of the many dipole oscillations compounded by AM upon them all. We shall study Zeeman magnetic and Stark-electric effects again in Unification.

ELECTRIC FIELD DIRECTIONAL DATA

Step angle AM of the at-rest electric field non-reactive transverse primary AM represents electric field directional data and is quantized in 10^{43} steps. It amounts to a field direction bifurcated into: towards the sink of negative charge, and, away from the source of positive charge, by classical convention. These angles can be kept track of via resolution of the mathematics involved.

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When the electric field is in translocation, this directional data translates to an angle AM of the magnetic field amplitude J reactive transverse primary AM, via parity changing the sign of the J operator of the AM sideband components in translocation. It is from these events we can determine a specific sign of the angle AM for the electric field and for the magnetic field.

Predictable progressive differences in dipoles towards a sink or away from a source are themselves reducible to a mathematical expression for directional data of an electric field and magnetic field and are expressive of overall resolution as angle AM.

GRAVITY AND ELECTRIC FIELDS SOME DIFFERENCES

While field directional data of electric and gravity fields are similar [angle AM], **parity**, is not.

Odd-parity, which changes the sign of the J operator, for electric-magnetic fields in translocation because they belong to the charge family of transverse primary AM.

Even-parity, which does not change the sign of the J operator, for gravity and mass in translocation because they belong to the mass family of longitudinal primary AM.

Allegedly, any field's directional data can be represented as an offset-bias, a leaning, an angle AM coinciding with the primary AM, at Level 2 be it non-reactive or J reactive of either longitudinal or transverse family. This is represented in the math via resolution, or keeping track of all factors.

All longitudinal field primary AM have a monopolar directional data vector always towards the sink whereas all transverse field primary AM have a directional data vector, which is bipolar, and its polarity depends on whether the vector originates as a field source or field sink.

Angle AM represents the directional data vector in all field cases, that is, at all of Level 2. From step zero level of gravity to more gravity, each point virtual bipolar black hole turns into a line virtual bipolar black hole effectively reducing our observed length via length J reactive stress of the virtual bipolar black holes, and increasing time dilation between each adjacent dipole virtual bipolar black hole on standing waves, swallowing more, reductively stressing length-time more. The more gravity, the longer each dipole virtual bipolar black hole appears to us altho inside the virtual bipolar black hole there is zero internal length-time, thus a bifurcation of reality.

Bifurcation of reality apparently holds true for all fields, charge, and mass, but each have allegedly unique mechanics of stress associated with application of their primary AM upon Level 1 dipole oscillations. With the slightest [step one] of electric field to be represented at Level 2, each virtual bipolar black hole of Level 1 turns non-reactively transverse quantumly forming and un-forming with each $\frac{1}{2}$ wave of dipole oscillation due to addition of transverse stress similar to longitudinal gravity stress.

We know from experience, we can not yet generate gravity [except by acceleration], nor, anti-

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gravity, as of this moment altho light pressure, like charges and poles [and if real, perhaps hypercharge], could be considered pseudo antigravity. Therefore, our test of gravity is one involving the above.

Mutual attraction between two unlike electric charges is proportional to the product of their two strengths and inversely proportional to the square of their distance apart. This equation is similar to that for gravity, and magnetism, and is Level 2 based where checks and balance system attempts to distribute the value added load of primary AM.

Are these attractions some form of gravity different from gravity as we know it? And what about like electric charges and like poles repelling?

Are these repulsions some form of pseudo anti-gravity? Yes, but they are a very different kind of gravity as we know it. We can not create on Earth an electric or magnetic field which changes the force of mass-gravity or acceleration-gravity or we would be able to fly away from the Earth and defy centrifugal force by simply using electric or magnetic fields. No, this does not happen, not at levels of intensity we can generate. The four fields, electric, magnetic, gravity, and *J* gravity, are not the same at-rest. In translocation, that is another story we will get into later. EM radiation field for example.

Even at the strongest of electric field intensities we can now generate on Earth, an electric field is not associated with AM compression \ expansion of the dipole longitudinal standing waves sufficient to change a portion of the transverse virtual bipolar black hole into a transverse plus longitudinally point or line virtual bipolar black hole. We can not at present generate an electric field sufficient to become associated with measurable gravity.

Gravity familiar to us as we know it appears to be only associated with a dipole longitudinally point or line virtual bipolar black holes. Apparently, acceleration, deceleration, and centrifugal force results in the same thing, but, as *J* reactive gravity we can not tell from non-reactive gravity. We do not know of an antigravity, not yet, altho same sign electric and magnetic fields repel in a pseudo-anti-gravity.

We know a motionless electric field in space does not attract a motionless magnetic pole and vice-versa. [The Hall effect is a different story, with atomic influences at work.] There is a decided interaction between an electric field and a magnetic field under certain conditions. Relative translocation and angles of relative translocation are key factors determining interaction.

Oscillations of a dipole apparently are able to represent at the same time, and same dipole, fields not in translocation and at intensities less than the various certain thresholds for interaction.

Gravity field near a stellar black hole has a decidedly different effect upon various parts of a given mass as we shall see later. Similarly so for an electric field acting on a charged sphere and a magnetic field acting on a pole.

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Like charges repel, unlike charges attract. [Same for magnetic poles.] Mutual coexistence, occurs when lines of force of two electric [or magnetic] fields of same direction sign are parallel. If they have same sign and are head-on at the start these lines of force in mutually exclusive existence wind up in mutual coexistence each rotated to some angle to become parallel and in doing the rotations are associated with a mutual repulsion force to be generated as if the length-time were stressfully stretched [or perhaps folded back upon itself as a curving]. Basis for this has to do with representation of either electric and magnetic fields, being transverse primary AM of dipoles. Repulsion effect is as if transverse primary AM were to exceed 100% then to become associated with stressful reduction in compression \ expansion at virtual bipolar black holes J reactively lengthening the dipole which J reactance is now in-line from one pole to the other. At LaGrange surface, angle AM changes polarity thus repulsion.

The effect is analyzed in the following way:

1. The electric [or magnetic] field is represented on each dipole as transverse primary AM having angle AM representing the field directional data.
2. 180° head-on lines of force of same sign means the transverse primary AM on each dipole is attempting to nullify each other.
3. 180° head-on lines of force of same sign means the directional data on each dipole is attempting to nullify each other.
4. Nullification would lead to no lines of force creating a paradox of both lines and no lines at the same time and on the same dipoles. Dipole oscillation virtual energies must be conserved because of the checks and balances system, so J reactance plays its part.
5. Attempting to nullify leads to production of a J reactive dipole expansive length-time stress which appears rotated physically at 90° from the transverse, as longitudinal 180° out of phase primary AM to that of the longitudinal Level 1 dipoles.
6. 1. thru 5. have two results:
 - 6a. each dipole appears J reactive stretched [reduced longitudinal stress with an associated J reactance appearing inside the point or line black holes creating a pseudo-anti-gravity as between the electric [or magnetic] fields;
 - 6b. attempts to nullify are associated with angular displacement of the transverse primary AM to angles for each dipole such as eventually thru successive dipoles the angle approaches 90° from the original at which point the lines of force from opposing fields can mutually coexist but under stress of J reactance to return to their original states of head-on.
7. With head-on lines of force having opposite signs, the transverse primary AM representing each electric [or magnetic] field attempts to re-enforce each other in mutual coexistence as does the field directional data because the opposite angle AM signs are attached to fields coming from opposite directions.
8. Attempting to re-enforce, leads to production of a J reactance which appears at 90° from the originating transverse primary AM, as longitudinal 0° in phase primary AM with that of the longitudinal Level 1 dipoles associated with a pseudo-gravity. These two phenomena, attempts at nullification and re-enforcement, are micro-Relativity at work and help explain Stark electric effect, polarization of emitted light from atoms in presence of an electric field whose intensity is beyond a certain threshold for interaction, about 10^7 volts per m. Stark electric effect and Zeeman magnetic effect are analogous.

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9. J reactance at the macrocosm can be further analyzed from the Planck Scale level of dipoles.

Every mass generates gravity. With more than one mass, the gravity field direction on either side of La Grange equal gravity surface [1 dipole thick] is always back towards a mass sink. So, there is a finite difference between directional field data for the various fields.

Going back to gravity field intensity, mass-gravity not J reactive gravity associated with acceleration. From experience with accelerators, intensity of increasing gravity of an increasing mass is a function of its velocity [translocation in the longitudinal direction]. In at-rest gravity, mass-gravity allegedly related to primary AM of the oscillating longitudinal compression \ expansion of a dipole into each line virtual bipolar black hole as we shall see further when we study mass. Mass-gravity comes about thru this velocity relationship, whereas acceleration J reactive gravity ceases to exist at zero or any constant velocity and only appearing during acceleration [parity, and part of the Principle of Equivalence, and, is Relativity at work].

An at-rest electric field's non-reactive primary AM, allegedly existing only if they were transverse, use dipole longitudinal oscillation as the frequency carrier, f_{carrier} . However, an at-rest electric field, can produce an increase in ability of the dipole longitudinal oscillations to represent gravity at extremely high electric field intensities beyond a certain threshold for interaction, that, is a significant event. For example: That event can be reached on surface of a charged mass particle, particularly in connection with spin of the particle turning out to be finite and discrete; a sort of spin quanta related to torsional AM, if, we keep track of resolution.

A dipole must be able to represent all fields simultaneously while they are at low enough intensities [below the certain thresholds for interaction]. Otherwise, at such low enough intensities as found on this planet, we would easily have seen interaction happen long before now. Perhaps we have seen it just outside the event horizon of stellar black holes, on surface of particles, and to some extent on surface of the sun. Even the most powerful laser does not appear to create, increase or decrease a gravity field, or it is an extremely small interaction, but it appears there is a different story, on the surface of a mass particle with an electric charge which particle has spin, angular momentum, a magnetic moment, and a spatial quantization.

According to Relativity, it is true, and, allegedly according to my dipole concepts, any gravity should effect any intensity of an electric, magnetic, or EM radiation field. Gravity, of our sun as well as other stars and stellar black holes, is strong enough to affect EM radiation field, and most likely such star gravity affects electric and magnetic fields as well. At very strong intensities, an electric or magnetic field affects an EM radiation field as it is being generated in an atom; Stark electric and Zeeman magnetic effects which act to modulate the de Broglie electron waves. I allege this is so because of an effect attributed to $h\nu$ quantum of light now containing value added quantized sidebands. Since light can be modulated producing sidebands, it stands to reason $h\nu$ quantum under modulation conditions also contains quantized sidebands and is not merely a single spectrum line. Simplistic singularity representation of any given $h\nu$ quantum is not enough. Thus, the math of $h\nu$ quantum must be modified to include the concept of quantized sidebands under modulation conditions of Stark or Zeeman.

CHAPTER 6 Continued

If we free fall approach a stellar black hole and then hold static position with an established given electric field we are carrying with us, we should see a vast increase of gravity from the stellar black hole and a vast decrease in intensity of that electric field which intensity is a function of orientation with respect to the gravity lines of force emanating from the stellar black hole. We shall study this later. This presents us, in a static position, with a tool to measure direction in space towards a gravity sink. So, where does the component of reduction of the electric field go in presence of a vast gravity field? My explanation is, while existing together on the same dipoles, greater gravity field is associated with transverse oscillations of an electric field representation, to be J reactively dragged into each virtual bipolar black hole along with that portion of the dipole exceeding about 10^{42} Kg stress which is the gravity AM. Dipoles give back the electric field taken into the virtual bipolar black holes when gravity field intensity decreases, as by moving a distance away from a stellar black hole to repeat the experiment.

So there is a J reactive storage mechanism capability built into each virtual bipolar black hole as regards the electric field being swallowed by those virtual bipolar black holes in the presence of a gravity field. That amounts to a J reactance just as in the case of increased mass and gravity as J reactive value added via Relativity.

Thus it can be said the decrease of an electric field, J reactively in the presence of a gravity field, amounts to effects produced by Relativity, in this case, micro-Relativity and involves conservation of virtual energies J reactively. Resolution in the mathematics keeps track of all this.

In the case of a component of reduction of an electric field in presence of increasing gravity, that situation is similar to reduction of our length-time due to increasing gravity associated with dipole oscillations taking place more of our time inside the line virtual bipolar black hole; that is to say, gravity is associated with a reduction in length and an increase in dilation-in-time, with a J reactive reduction in an electric field strength both as a result of dipole oscillations spending more of our time in the virtual bipolar black hole.

In the case of an at-rest electric field existing without gravity, that electric field itself is associated with a transverse stressful reduction in our length-time. We will study more of these later.

CHAPTER 7

THINK OF A STELLAR BLACK HOLE

Our sun's mass $[M] = 1.989 \times 10^{30}$ Kg. A stellar black hole can be 10^{10} $[M] = 10^{40}$ Kg.

Visualize a dark star with far more gravity than our own sun, a stellar black hole. Intentionally, I have used the word gravity instead of mass so as to avoid a possibility a stellar black hole may only have gravity and no mass. In effect, an extraordinary Principle of Equivalence.

There is a very strange uniqueness about a stellar black hole, it is accompanied by a tremendous strong gravity field which is observed far into space.

Question: If a stellar black hole has such intense gravity as to swallow its own starlight, why does it not swallow its own gravity field?

In the scientific community, apparently none of the stellar black hole concepts developed so far consider that logical question. I rely on the stellar black hole not swallowing its own gravity in order to extend my Planck Scale commonality mechanics concept beyond Level 1 dipoles. A gravity field is the easiest and simplest of fields to describe in this paper.

INSIDE, ON, AND OUTSIDE A STELLAR BLACK HOLE

Just inside a stellar black hole, as well as deep inside, all dipoles look like totally virtual line black holes each of maximum quantum.

That expression can be said four other ways:

1. Planck Scale dipoles seen as totally line virtual bipolar black holes could only exist inside a stellar black hole. The gravity represented by those virtual bipolar black holes would be so enormous it could not exist anywhere in our continuum except inside a stellar black hole;
2. All Planck Scale dipole oscillations can then only take place on the inside of totally line virtual bipolar black holes;
3. Length-time is zero when all of the Planck Scale dipole oscillations have disappeared into totally line virtual bipolar black holes;
4. Planck Scale dipoles in a stellar black hole represents gravity and no other fields, charge, possibly not even mass.

At the stellar black hole event horizon, I allege the horizon is one Planck Scale dipole dual energy unit thick, and forms the boundary between dipoles looking like totally line virtual bipolar black holes comprising length-time zero and those dipoles which are not totally comprising length-time not zero, making for non-symmetry. However, the dipoles forming the event horizon are unique existing elsewhere only at the surface of a mass particle.

That expression can be said another way:

1. Each and every Planck Scale dipole forming the stellar black hole event horizon has a center dividing point, dividing the dipole into two parts, one towards the center of the stellar black hole and the other 180° away.

CHAPTER 7 Continued

Outside the stellar black hole event horizon, a Planck Scale dipole looks like less than a totally line virtual bipolar black hole. That expression can be said two other ways:

1. A Planck Scale dipole seen as less than a totally line black hole would have some of its oscillation on the outside of its line virtual bipolar black holes, with most of the other of its oscillations on the inside and this occurs just outside of a stellar black hole.
2. Planck Scale gravity extends outward towards normal the farther one moves away from a stellar black hole which intensity of gravity is governed by the inverse square law.

MORE ON THE VIRTUAL BLACK HOLE

Point or line virtual bipolar black holes allegedly represent at-rest gravity, for a period of dipole cycle time when Planck Scale non-reactive longitudinal oscillations are in the peak compression \ expansion parts of that cycle where stress exceeds about 10^{42} Kg, at a frequency of about 10^{43} Hz. That portion outside the point or line black holes [viewed towards the dipole trough] is what we see in our reality as stressful reduction of the length-time and is really that which represents gravity; the more stressful reduction, the more gravity.

Inside a stellar black hole we saw all dipoles as totally line virtual bipolar black holes suggesting a maximum gravity. [If curling is not a possibility.]

So, if I set up a mind's eye imaginary experiment to view the smallness of smaller than Level 1 dipoles, I would be seeing only dipoles with point or line virtual bipolar black holes, exceeding about 10^{42} Kg stress J reactively, and, if total, existence could only be inside a stellar black hole.

Thus, the smallest size of our reality as we know it for which we can imagine in Level 1 is in the range of Planck Scale. Any smaller and we do not have Level 1 but rather an at-rest gravity field of Level 2 and a subspace of Level 4.

This does not discount the possibility of an underlying support system inside the point or line virtual bipolar black hole, which insides we might call subspace, as if looking thru portholes to but one bipolar singularity. I examine that possibility more so in Level 4.

CHAPTER 8

THE REDSHIFT AND THE BIG BANG

Most scientists believe the redshift is totally a Doppler effect, a result of galaxies flying apart from each other [the expanding universe] which concept leads one into the arena of speculation as to origin of that flying apart being caused by a big bang about 13.8 billion years ago.

I contend, if all of the continuum were now somehow to become devoid of both radiation and mass, another so-called big bang would eventually result from release of dipole end-node bipolar black hole stored virtual energies of dimensional fluctuations and their upper sidebands. Regardless of what transpires in our continuum, the big bang is inevitable altho if without mass and radiation, only dimensional fluctuations, it might take an enormous period of time, perhaps as long as 10^{39} years.

In empty free length-time, dimensional fluctuations are said to be a natural property of dimensional smallness and become significant at about the smallness of Planck Scale which energy is enough to form virtual black holes. *Schwarz and Green*.

For purposes of argument set forth here, the reader can be thinking about this, I consider dimensional fluctuations were, are, and will be, forever present. Long before our so-called big bang. Suppose in the last-cycle-continuum there was an eventual reduction of star-mass where a sufficient amount of mass eventually had turned into radiant energy. It is alleged, the redshift is responsible for causing radiant energy traveling great distances to lower it's quanta not simply from the Doppler effect of an expanding continuum. I say the redshift is caused, in part, by residual gravity generated by upper sidebands of dimensional fluctuations having been drawn and swallowed into the universal matrix of black holes at end-nodes of Planck Scale dipoles, everywhen everywhere. The corollary to the hypothetical residual gravity in empty free space, is residual time dilation. Both residuals would be basic to all of the continuum regardless of location biasing measurements of the expansion redshift.

That swallowing of dimensional fluctuations, and radiation traveling thru the residuals, I say, takes place at adjacent ends of each paired adjacent dipole black holes. While the swallowing is going on, generating residuals, precisely where did the original energy of random modulation come from? Dimensional fluctuations. And when swallowed where did the energy go? Into the end-node black holes.

Is there a *J* Reactive Reality continuum inside stellar or virtual black holes? Yes--the next big bang cycle reality continuum yet to be. How much energy can virtual black holes swallow into their singularity bipolar black hole before they can be considered full of stored energy and can absorb no more? Bang! Into the beginning of the next real continuum. Are they storage mechanisms in our reality? Yes, *J* reactive storage. Accumulating now to give back later? Yes. Important questions to be asked in this study with some unconventional possible answers. One aspect of black holes I study in Subspace is the possibility, all black holes everywhere in our continuum occupy the same internal resonant placetime, a singularity bipolar black hole. An internal *J* Reactive Reality continuum growing all unto itself. Viewing black holes from inside reveals what they all look like; one resonant bipolar placetime.

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That scene suggests there could be a limit to the intake of energy from our side of the event horizons feeding *the* singularity. Inside, they would call incoming energy virtual energy [primary and secondary modulation peaks from the outside], coming into the singularity black hole. Inside, it would be similar to our continuum except their boundary is a single surface of an event horizon we see from our side as thru the many point or line virtual black holes and the many stellar black holes. To them inside, all our black holes regardless of placement in our continuum are at one and the same placetime; subspace to us, but, looking out from inside, they see thru the event horizon of a giant black hole into where length-time is zero. Their continuum full of stored energy when turned inside out becomes our big bang to start the cycle over again when the stored energy finds no more storage placetime. It is full. One more iota and **ker-bang**.

For us on our side, we look into any black hole to see length-time is zero. To us, this is very strange. So would looking out from inside. The point I am trying to make is the scene of a viewing thru an event horizon is a function of from which side we look; a bifurcation of visualization, and, a bifurcation of reality.

If the above concepts are valid, then [in our view] the swallowing of stellar radiation quanta, part of the redshift, is made into dipole black holes everywhere pouring J reactive energy into but one singularity bipolar black hole which will eventually give back what it has stored over the life of that internal continuum cycle.

Regardless of which system of frame of references are used, the one inescapable principle in the summation of all frames of references is ultimately a complete conservation of energy. It may take a great deal of length-time and involve different forms, but energy eventually is conserved. For example: Energy into mass and back into energy; our energy into black holes and eventually back into our energy. Stored energy, in what ever form, is not always time dependent to make a return. It can be time dependent as in decay of mass to energy. The half-life decay phenomenon can be explained in terms of Planck resonant dipoles and a set of trigger methodologies analogist to laser and the de Broglie effect.

Dimensional fluctuations at near Planck Scale have enormous bandwidth proportional to smallness down to Planck Scale at which point things change radically [virtual bipolar black holes forming]. One upper sideband frequency component of that bandwidth at precisely the frequency of Planck Scale naturally causes the resonant dipole with its end nodes of bipolar black holes, standing waves, checks and balances system. Any energy of higher frequency components of the bandwidth are found inside the dipole end-node black holes having been J reactively swallowed into the virtual black hole's zero length and zero time.

These above concepts lead into speculation and questioning the accepted concepts of a big bang as a total requirement for the redshift, and, a once and for all big bang. There could be other explanations, such as Planck Scale dipoles, their black holes and for a redshift \ black holes \ big bang which ought to be studied.

Allegedly, without the dipoles, formed from dimensional fluctuations, there would be nothing

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from the infinitesimal to the infinite in both time and space.

From these concepts comes a speculation, in empty free length-time, the bandwidth components above the frequency of Planck Scale dipole because of their being inside the dipole black hole causes a reduction of length-time outside the black hole in our reality. The effect is one of a creation of residuals of gravity and time dilation. Were that the case it would prevail thruout the continuum and account for at least part of the total redshift. Mathematical analysis should be studied for residuals as part of the redshift sources.

Allegedly, the big bang is natural and cycles every so many eons. The rapid expansion said to occur at first in a new universe could be attributed to a natural phenomenon of *the* singularity emptying its contents at which point dipole time stands still in a reverse parity [from normal odd-parity to an even-parity] together with dipole length oscillations adding length of each $\frac{1}{2}$ cycle to the previous one in a reverse parity [from normal even-parity to an odd-parity]—which both reverse back to normal parities a finite number of dipole cycles later. Allegedly, *the* singularity, in giving back to Real Reality that which is stored in its *J* Reactive Reality, apparently contains the makings of a parity reversal of both dipole time and length during the initial part of the explosive big bang and then reverse again back to normal to continue expansion much more timely. This would account for the first moments of extreme expansion.

As I mind's eye view this having happened, it appears to me this is a property of *the* singularity going from a full *J* Reactive Reality to a Real Reality for some short moment of Real Reality time. The precise mechanics of these alleged events are unknown at this time.

However, one could postulate the big bang comes about as a result of all of the virtual black hole horizons acting as rectilinear elements in reverse, that is, tension from direction of all dipole end-nodes [*the* singularity] suddenly is much greater than that from direction of the troughs of all dipoles. This greater energy comes from all the storage in *J* Reactive Reality of *the* singularity suddenly going ker-bang.

The energy from inside *the* singularity now causes new sidebands upon escaping into Real Reality which produces a reversal of parities until the tension across the dipole virtual black hole event horizons equalizes and then goes normal across event horizons of all the dipoles.

We should be able to estimate this settling down time on the basis of how much energy is stored in *the* singularity at the time just before the big bang. This would give us the number of dipole cycles of total virtual black hole existence followed by number of cycles while the tensions go down steps to where parities are normal. And, where-ever this happens that forms the "*place*" where the big bang occurs preventing the ability of anywhere else [places] from forming secondary big bangs. *The* singularity thus empties into Real Reality at that "*place*".

Speculating, the big bang could have come from a previous continuum having gone thru a cycle of a beginning and an end at which end a black hole bipolar singularity was all there was left in that continuum and became our cycle's beginning. That singularity black hole would be giving back in our cycle what it had accumulated in the previous cycle. To us now reviewing the big

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bang, it most likely came from a black hole bipolar singularity the size of a Planck Scale dipole, 10^{-35} m.

CHAPTER 9

***J* REACTIVE AM**

A word on *J* reactance. It is a concept I borrow from Electronic and Electrical Engineering. It applies to any phenomena involving storage of energy only to give it back later. It can take several forms during the storage phase. Usually, *J* reactance applies to the cyclic phenomena during storage of cyclic energy at $\pm 90^\circ$ phase shifted from another cyclic energy. However, it can be associated with value added to original during translocation.

Since 1987, I have thought *J* reactance can be applied to all equations involving translocation. But from 1949-1987, I had no idea precise frequency dipole cyclic phenomena or virtual bipolar black holes could be involved at the very small as I do now.

As I developed the Planck Scale gravity field representation, I discovered a *J* reactive AM was not needed, it was zero, to complete the thought about at-rest gravity. However, I found a *J* reactance concept was required to formalize a bifurcation of reality into our Real Reality and the reality found inside dipole end-nodes under conditions of AM I call *J* Reactive Reality. Later I found a *J* reactive AM was also not needed to complete the thought about at-rest electric field. As applied to a gravity field in Relative constant translocation, allegedly, a *J* reactive longitudinal AM is needed. *J* reactive gravity, it turned out, is also associated with acceleration. Real gravity in translocation, and, *J* reactive acceleration-gravity, looked and felt precisely like more gravity in our slower real macrocosmic world, which it is proposed, is because of Level 2 longitudinal character of at-rest gravity AM being imposed in line with Level 1 longitudinal dipole oscillations.

This is to say, altho non-covariant in length and time of the dipole, translocating gravity, while containing *J* reactive AM sideband components, is still longitudinal and to us looks like more gravity along the longitudinal direction of translocation. Therefore, we need to include math of Fourier series, modified by mathematics of complex phase planes, and Relativity, keeping track of everything via resolution in order to complete the thought about a gravity field in translocation generating more gravity, and, for acceleration to generate *J* reactive gravity. We shall address translocating gravity more later.

In studies beyond at-rest gravity, it is proposed, I make use of *J* reactive AM to show how and why translocating original gravity generates more gravity in the direction of translocation.

Not all possible *J* reactive AM are required to represent a given field. Quantum matrix reality is not an ether concept, said in the 1800s to be a medium of space thru which light can travel.

It is proposed, a characteristic of dipole oscillations is there is no active Level 1 inverse square law. This is because all quanta of Level 1 standing wave dipoles thruout the universe are identical and their average position relative to all others does not vary in a checks and balances system and is without transmission of its fundamental Level 1 resonant virtual energies; only *J* reactive AM sideband components of Levels 2 and 3 can translocate. Only Level 2 complies with the inverse square law.

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Gravity of Level 2 and mass of Level 3 increase longitudinally [which has to do with even-parity, and, Relativity] in the direction of translocation [not transversely]. An EM radiation field of Level 2 translocates as AM sideband components upon Level 1 quanta at the maximum speed, $|c|$. Thru Levels 2 and 3, light speed depends upon the medium, being slower thru gravity and very much slower for a dense Level 3 medium, such as condensed mass at 0° K.

Translocating electric or magnetic fields of the Level 2 do not generate more of themselves only the other [which has to do with transverse J reactance, odd-parity which reverses sign of the J operator, and, Relativity]. There are other effects we shall study as part of reactance and Relativity.

CHAPTER 10

ACCELERATION *J* REACTIVE GRAVITY FIELD

Any entity which appears to us in our reality to increase as a function of increasing velocity and to likewise decrease as a function of decreasing velocity I consider is an observation of *J* reactive added value to original.

I consider gravity associated with acceleration [and gravity in translocation we study later] as *J* reactive added value because when the acceleration ceases there is then no added value. This *J* reactive form of gravity, because it is 90° cyclic phased from each dipole longitudinal resonant oscillation along the path of standing waves of a line segment, is generated in Relativity as *J* reactive longitudinal primary AM with angle AM serving to represent directional data. I am not talking about acceleration caused by gravity; that amounts to free fall as when an object is falling towards or orbiting a sink of gravity such as a planet. This *J* reactive gravity is quantized. Dipole to dipole changes form a beginning and an end to each and every gravity quantum with the summation as quanta all subject to Fourier analysis. At our level of macrocosmic reality we can not see each dipole forming a quantum but see only the averaged quanta.

For our observation to be valid, all this takes place absent any artifacts of any kind. To grasp the concept of a *J* reactive gravity field associated with acceleration, we start by magically collecting data from viewing a portion of a Planck Scale line segment's dipoles sitting in a standing wave. We view perpendicular to the line segment and its point virtual bipolar black holes at each and every dipole end-node, with a magical video camera, magical computer, and a magical display screen, all of these with infinite resolution, infinite number of frames per second, and zero time lost in getting, handling, and displaying the data as a graphical image.

This magical setup produces for us a magical image on this magical computer screen with which we, as the observer, can see the computer generated image of the dipoles sitting in their standing waves on the line segment while we are at rest, constantly translocating, or constantly accelerating. As with our earlier study of Level 1, we and our apparatus do not generate any fields, neither real nor *J* reactive.

Earlier, we said while Planck's length-time is not a crystal lattice structure, dipoles do not translocate [because of checks and balances everywhere thruout the continuum] only effects [primary AM sideband components] can translocate from dipole to dipole. In the case of Relativity at work, effects come and go [thus all such translocating primary AM as effects are *J* reactive]. In the case of translocating longitudinal primary AM the translocating effects are different to different observers. Translocating transverse primary AM is independent of observer. We saw these effects more clearly in a comparison of the at-rest gravity field with the at-rest electric field. Later, we shall see the comparison of effects of their motions. But for now remember there are two families of primary AM, longitudinal and transverse.

While at-rest, we feed camera data into this magical computer. The computer stores all data, makes data comparisons and displays on the screen an at-rest baseline graph while we are at-rest. We see on the screen the amplitude of tensions along the standing wave from zero at mid-center between dipole ends to about 10^{42} Kg tension opposing from opposite directions at the virtual

CHAPTER 10 Continued

black hole boundaries of the dipole end-nodes. We see the length between each point virtual black hole; and, the virtual black holes themselves to see each dipole end-node is precisely a point precisely equal to every other end-node point. While at-rest, the screen shows us a graph of intensity of tensions versus length between several point virtual black holes on a line segment. Because time is dipole sinusoidal, the picture on the screen looks like an oscilloscope view of an inverted full-wave rectified AC triangle wave with the abrupt change in intensity representing the point virtual black hole at each dipole's end-node.

Having established an at-rest base-line graph for further measurement comparison, next, we, as observers, move at a constant velocity with our magical equipment parallel to these standing waves to again bring up on the screen to view any differences our constant motion makes compared to the base-line. If we adjust the computer program's handling of the constant movement data we could compensate for our constant velocity to display a stationary graph which is not translocating on the screen. We can adjust the display to superimpose the constant translocation graph over the at-rest graph of the base-line, that is, the displayed graphic shows us two images which do not move across the display screen.

While we are in constant translocation, but considerably less than the speed of light, say a few km per second, we note on this stationary second graph no apparent difference compared to the at-rest base-line graph. We are looking perpendicular to the line segment so we do not see a Doppler shift in frequency of carrier of the dipole oscillations as we translocate. Because we are looking transverse, the FitzGerald-Lorentz contraction does not appear. [Contraction would take place looking longitudinally in the direction of translocation.]

Next we constantly accelerate. We adjust the computer program's handling of this constant acceleration data to again display for us this third stationary graph of intensity of dipole tensions on the standing waves versus time along the standing waves. Now the graph appears decided difference from our at-rest and constant velocity yet stationary produced three graphic images on the screen.

This time, the third graph [program adjusted to display this data as stationary] shows each succeeding standing wave dipole, compared to the base-line graph, seems to have a consistent shorter real length between once point virtual black holes now turned J reactively longitudinally and in turn to have turned into line virtual black holes with tension on each standing wave increased more at the end towards the opposite direction from acceleration, representative of an offset-bias suggestive of giving directional data to the J reactive gravity field thus generated.

That directional data displayed is the difference between the graph of acceleration and at-rest \ constant velocity graphs, 1 and 2, and the computer has determined for us the equation representing differences in the graphs and it is allegedly a J reactive longitudinal primary AM along with longitudinal angle AM imposed thereupon; that is, the display gives us a J reactive gravity field representation with a leaning of the oscillation curves towards the direction from which we came looking to us like gravity we can not tell from mass-generated non- J reactive-gravity. I say it is a J reactive gravity because it will return to zero when acceleration ceases.

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The effect [not FitzGerald-Lorentz contraction] is as if the spatial length were shorter [J reactive gravity] and the spatial time were longer [J reactive time dilation]. That shortness of length and that longness of time is J reactive and is proportional to the amount of fixed acceleration we experience. The shortness appears to us as the very same kind of shortness we found when we studied gravity except the primary AM [associated with acceleration] has a 90° phase relationship to dipole resonant oscillations. At different accelerations we, as the translocating observers, will see on our screen different lengths of line virtual bipolar black hole lengths are a direct function of acceleration.

Those differences in observation results are Relativity at work, that is, micro-Relativity, a translocation from one dipole to the next as longitudinal J reactive effects only this time they are associated with our own increasing velocity. Therefore, acceleration J reactive gravity is a direct function of acceleration with angle AM producing directional field data towards the direction from which we came. There are additional descriptions of this effect. For example: The length of virtual bipolar line black holes are of different lengths on the same dipole at its end-nodes.

Gravity we said was a stressful reduction in a spatial length accompanied by a stressful increase in time. It appears acceleration J reactive-gravity and mass non- J reactive-gravity are viewed by us as identical appearing stresses of the length-time [because they are all longitudinal in character] and are equivalent; that is, both follow the Principal of Equivalence enunciated by Einstein.

While in constant velocity or at-rest, we notice no difference in displayed graphs of intensity at any point along each dipole.

Free fall is gravity caused acceleration, while in free fall towards or orbiting a sink of gravity, we notice no difference in displayed graphs of intensity to that of the at-rest base-line. Even tho they were formed while we were at-rest in a gravity field, virtual bipolar black holes appear to us in free fall to lose their form and we see them again as in Level 1; that is, free fall in a gravity field and zero gravity both exhibit the same dipole characteristics. Both are caused by point virtual black holes of Level 1, zero gravity having only no appearance, while in free fall the previously gravity formed virtual black holes have returned to Level 1, complying with the Principle of Equivalence.

It may seem strange, but in free fall towards a stellar black hole event horizon, we should notice no gravity, that is, if we were a singularity point. If we were a spherical object of size in such free fall, on the other hand, we would definitely feel dissimilar gravitational effects, those parts of the sphere in converging gravitational trajectories [emanating from the stellar black hole] causing a generating of gravity acting to bring mass together at a right angle to direction of stellar black hole's gravity, plus a greater gravity from the stellar black hole acting upon closer mass than mass less close causing a generating of anti-gravity, that is, less gravity acting on the end of a diameter of the sphere away from the direction of stellar black hole gravity. These two dissimilar gravitational effects can be explained by examining how dipoles operate.

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Time dilation in atomic orbits is as a result not of the source gravity holding the orbit but gravity associated with orbitally passing thru converging gravitational trajectories. These unusual effects are *J* reactance at work.

While we are accelerating in Level 1, on our screen we notice tension on the end-nodes of the each dipole in the standing wave have increased *J* reactively uneven beyond about 10^{42} Kg tension and have caused the point virtual black holes of Level 1 to turn *J* reactively and into bipolar virtual line black holes. Also, each dipole of the standing waves has become distorted, looking like it was leaning away from the direction of acceleration towards where we came from. This leaning provides us with specific direction data of the gravity field associated with acceleration. It is an offset-bias; an angle AM coinciding with the longitudinal stressful reduction in a spatial length and with its accompanying time dilation in the length-time of the dipole.

These acceleration effects are also Relativity at work. There are other effects of Relativity at work, the redshift and time dilation within Level 2 acceleration *J* reactive gravity Field.

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TRANSLOCATION OF FIELDS - MINKOWSKI'S ROTATION OF AXES

I proceed by establishing some limits thus narrowing investigation. Experience says, relative to a stationary observer, a constantly translocating charge and its electric field do not increase with translocation while a constantly translocating mass and its gravity increase with translocation in the direction of translocation.

Experience has been put to print. Here are two modern physics statements quoted from *Encyclopaedia Britannica*, Volume 26, p534 (1990). Ins. add.

1. "...sources of the electric field, electric charges of particles, have values independent of state of motion [translocation] of the instruments by which these charges are measured."

Said another way, an electric charge, and its electric field intensity, appear to remain the same value regardless of translocation Relative to different observers. Almost as if the translocating charge and its field were related to the Relativistic concept of $|c|$ being independent of observers, giving us a clue as to what type of primary AM to look for in regards charge and electric field. But Relativity in this case does not seem to directly apply to the sources [and sinks]. Why? Certain J reactance effects, magnetic field production as value added, appears to be a possible answer. Electric field and charge I have proposed are forms of transverse primary AM upon the Level 1 longitudinal dipole oscillations. The next statement differs radically from the first.

2. "...source of a gravitational field, mass of a particle, and the mass of that particle, increases with an increase of speed [trans-locating] of the particle relative to the frame of reference in which it is determined and hence will have different values in different frames of reference."

Said another way, a gravity field of a mass and the mass itself both appear to increase with translocation in the direction of translocation [but not transverse to direction of motion] and said increases differ with translocation Relative to different observers, giving us a clue as to what type of primary AM to look for in regards mass-gravity. Gravity and mass I have proposed are forms of longitudinal primary AM upon Level 1 longitudinal dipole oscillations.

Relativity in the case of mass-gravity does apply directly only to longitudinal observations. Why? J Reactance with its value added and longitudinal view versus transverse view effects appears to be possible answers because it does matter which observer reports what.

It is alleged, J reactance in 2., above, appears with translocation of mass and gravity longitudinally but does not apply the same way as J reactance associated with translocation of electric charge and its electric field in 1., above.

Why does Relativity appear longitudinally to directly apply to a translocating mass and its gravity and not longitudinally to translocating electric charge and its electric field in an identical way? If the essence of this question is correctly presented, then the concept of Relativity must be modified to include a better definition, which I do herein without changing classical Relativity as a whole.

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I say there is one family of primary AM [transverse] associated with electric charge and its electric field and another [longitudinal] associated with mass and its gravity and these account for bifurcated Relativity effects [charge versus mass in the longitudinal direction].

Analyzing the data from experience:

1. Relativity appears to indirectly apply to translocating electric charge and its electric field. Indirectly meaning, translocation of charge and electric field are associated with a magnetic field, the mathematics of which include odd-parity and change of sign of the J operator. The magnetic field is then value added to original as a function of velocity differences between observer and the translocating electric field.
2. Relativity appears to directly apply to translocating mass and its gravity. Directly meaning, translocation of mass and gravity are associated with more of the same, value added to original, the mathematics of which include J reactance.

Real mass in translocation and its real gravity in translocation allegedly results in an added value J reactive mass and added value J reactive gravity [viewed as occurring in the longitudinal direction of translocation but not transverse which remains unchanged] which looks and feels like more mass and gravity we can not tell from real mass and real gravity [part of the Principle of Equivalence]. In the transverse view of mass and gravity, the originals do not have observable added value J reactive changes with longitudinal velocity. These are allegedly because these translocation are J reactive longitudinal primary AM upon the dipoles and are thus not to be seen transverse. In Minkowski terms, his rotation of axes cannot be seen from a right angle because we are then looking, in the above case, along the J reactive vector seeing the vector end only as a zero dot. In the longitudinal direction I say the math of translocation of mass and gravity are similar to the complex numbers equation for impedance from Electronic and Electrical engineering:

$$(14) Z_{\text{impedance}} = a_{\text{real resistance}} + Jb_{\text{reactance}}$$

For us to understand and observe (14) in terms of value added to original, A stands for original and B stands for reactive value added to original.

To put (14) in context of Minkowski's equation (1), (1) must be modified to include cyclic phenomena. To do this correctly and completely, mathematical complex phase planes are needed, and, the assistance of a mathematician. And something else, a J reactive entity is not able to exist without its entity to which it is J reactive. This is to say, one can not have value added to original without the original.

For an at-rest electric field representation, I have proposed a transverse primary AM of dipole resonance, that is, a non-reactive [0° phase] as transverse primary AM, at physical 90° to the dipole longitudinal oscillations, and covariant in-phase at 0°, with the dipole oscillations [until reaching a certain threshold for interaction (100% modulation--an extreme value), and \ or, in the presence of gravity]. Transverse reactive $\pm [J_{y,z}]$ primary AM would represent electric field in translocation, magnetic field, electric charge, and charge in translocation. $\pm [J_{x,y,z}]$ are operators

CHAPTER 11 Continued

indicating reactance designations are in mathematical complex phase planes and are not related to physical 90° activities, that is, they are not \pm transverse physically 90° to \pm transverse, only in a phase relationship. Odd-parity of transverse AM on the other hand changes the sign of the J operator making the translocating electric field appear as value added in the form of a magnetic field instead of an increased electric field.

Thus, we have a set of five transverse primary AM classifying a family of effects associated with electric charge and electric field, at-rest and in translocation along with the magnetic field, at-rest and in translocation, while the set of five longitudinal primary AM classify a family of effects associated with mass and gravity, at-rest and in translocation along with acceleration J reactive gravity. Angle AM, for all primary AM on Level 2 representing fields, is herein defined as field directional data. Torsional AM, the 12th primary AM, deals with chirality and spin, etc.

After studying Einstein's Relativity, and considering Lorentz 1904 transforms, Minkowski offered his opinion, motion [translocation of mass and gravity, for example] was associated with a rotation of axes in 3D. See *Encyclopaedia Britannica*, Volume 28, p655-2b (1990).

As I see it, his opinionated rotation was composed of two parts: 1st, the original static value (a); second, a value added $J(b)$, which value is a function of translocation, where the resulting hypotenuse, in macrocosmic terms not Planck Scale, (z), became:

$$(14a) \quad z = a + Jb$$

rotated to an angle ϕ because of value added $J(b)$ factor as a function of velocity.

J in (14a) does not represent reactance associated with cyclic phenomena at the Planck Scale, but only of generalized events of translocation at the macrocosmic level of reality. By modifying coefficients of Minkowski's equation (1) in light of translocation cyclic phenomena at Planck Scale, of Fourier series, and mathematical complex phase planes, etc., we can make the connection between his axes macrocosmic rotation (z) he speaks of, and a Planck Scale bifurcation of reality into Real Reality plus J Reactive Reality and a bifurcation of Relativity into charge family based and mass family based, leading us then thru Lorentz transforms, like (2) to a unified field theory. All these factors progressing thru Lorentz transforms can be kept track of via mathematical resolution, a modification of equation (1) to (2).

The Minkowski rotation of axes, ϕ , are where supposedly I get partial confirmation of my cyclic phenomena concept of J reactance applicable to translocation effects requiring the use of mathematical complex phase planes; complex numbers, real vector (a) plus reactance vector $J(b)$; similar to the equation for AC impedance, equation (14).

When math complexity coefficients modify equation (1), to include all of the field translocation AM sidebands and at least the 7th harmonic of f_{carrier} as a 1st approximation, we can proceed thru Lorentz transforms to view mathematically the full macrocosmic matrix represented as a resulting modification of Einstein's equation (2), which interpretation then becomes a unified

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field theory.

However, the J reactance complex can be seen as a bifurcation of Relativity, either based upon longitudinal mass family, or based upon transverse charge family. Or, both, as for example an electric field translocating not synchronized with a translocating gravity field.

This bifurcation of Relativity can be shown by visualizing two macrocosmic level field intensity two dimensional translocation vector graphs. For purposes of these graphs we discount ϕ angle, time dt^2 , and dipole cyclic phenomena. We are not visualizing the actual happening. We simply want to see $(z)_{\text{gravity}}$ or electric in a contrasting result, a bifurcation of Relativity:

Gravity field. Looking along the make believe z-axis, an x-y 2D graph of translocating gravity field shows us a real horizontal originating at-rest gravity field value vector $(a)_{\text{gravity}}$ with a reactive value added $+J_y(b)_{\text{gravity}}$ vector graphically appearing in the vertical plane, y, as a function of translocation. Increase in value added vector appears to us to increase $|(z)_{\text{gravity}}|$ as a function of translocation.

Electric field. Looking along the z-axis, an x-z 2D graph of translocating electric field shows us a real horizontal originating at-rest electric field value vector $(a)_{\text{electric}}$, but with a reactive value added $J_z(b)_{\text{electric}}$ vector graphically appearing in the horizontal plane we see only as a dot not changing as a function of translocation. Therefore, $|(z)_{\text{electric}}|$ always equals $(a)_{\text{electric}}$. If we could look at this graph along the make believe y axis we would see a magnetic field $-J_z(b)_{\text{electric}}$ as the value added. This reversal of sign of the J operator in $J_z(b)_{\text{electric}}$ from $[+]$ to $[-]$ is because of the transverse character of the electric field, and, its odd-parity.

It has been said above, gravity is longitudinal thus its translocation J vector value added is at a right angle to originating value lying in the x-y 2D plane. Electric field is transverse thus its translocation J vector value added is also at a right angle but lying in the z-y 2D plane.

For gravity, above, the J coefficient was intentionally chosen as $[J_y]$, and for electric field $[j_z]$, and these were chosen as so as to draw attention to results of our viewing the graphs along the z-axis, to a difference between gravity and electric fields as a function of translocation. Thus, the equation:

$$(15) |(z)_{\text{gravity or electric}}| = |a + J_{y\text{gravity or } z\text{electric}}(b)|$$

graphically represents factual sightings by a stationary observer actually looking in the longitudinal direction of field translocation giving some idea why Relativity is bifurcated.

To clarify, the drawn graphs of $|(z)_{\text{gravity or electric}}|$ at (15) and the factual sighting are not at the same view angle. Graphs are useful to illustrate a concept; it is not a visual fact of precise orientation. The true sighting of translocation is what is fact while the graphs can be put into any angle for viewing, such as on a table or hung on a wall. The drawing of the graphs to be placed say on a table, was done in 2D while our view of the graphs was at the z-axis. This was done for contrast to show graphically a difference between gravity and the electric fields while in translocation.

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With the graphs in mind, we then can see factual translocation of these two fields have different results of value added. Gravity increases $+J_{\text{gravity}}$ reactively while the electric field has no apparent electric field $+J_{\text{electric}}$ reactance. However, we find upon looking at the electric field at a right angle from that of z-axis [along the y-axis], we see the magnetic field we could not see while looking along the z-axis. So translocation of electric field while it does not produce a $+J_{\text{electric}}$ reactively added value to originating electric field, it does produce the added value $-J_{\text{electric}}$ magnetic field instead.

This is done via the odd-parity aspects of the mere fact of translocation of the originating electric field which changes the sign of the $+J$ to $-J$ which is the magnetic field as value added. The secrets of nature are most complicated, intriguing, and fascinating.

Minkowski's equation (1) can be most helpful in showing what happens at Planck Scale in presence of primary AM upon dipoles; a length, x, y, z, with time, dt^2 . In At-rest Gravity, I pointed out intensity of primary AM unique to at-rest gravity is associated with virtual bipolar black holes having moved their event horizons closer to the dipole center from each end-node as a function of intensity of gravity thus shortening our Real Reality we observe. A reduced Real Reality is as tho component parts of equation (1) were reduced. Minus times plus gives minus, for x, y, z, the decreased length of our reality portion of a dipole, and minus times minus gives plus, for dt^2 , the increased time of our reality portion. In terms of the Planck Scale, our Real Reality length reduces and time increases, hence which of x, y, z, we take as in length-time at the Planck Scale is irrelevant when eventually viewing the matrix at the macrocosm. J Reactive Reality in the virtual bipolar black holes is that reduced part of original Real Reality, for at-rest conditions. For translocation, the picture gets complex.

At the Planck Scale level, static Level 1 dipole length and time are both sinusoidal oscillations. In the presence of AM, that portion of the original Real Reality Level 1 length-time value disappearing into the virtual bipolar black holes becomes J Reactive Reality.

Because of the character of dipole length oscillations and its even-parity, J Reactive Reality length of at-rest gravity detracts from the originating Level 1 Real Reality length. Because of the character of dipole time oscillations and its odd-parity, J Reactive Reality time in a gravity field, while it detracts from the originating Level added. This reversal of sign of the J operator in $J_z(b)_{\text{electric}}$ from $[+]$ to $[-]$ is because of the transverse character of the electric field, and, its odd-parity.

It has been said above, gravity is longitudinal thus its translocation J vector value added is at a right angle to originating value lying in the x-y 2D plane. Electric field is transverse thus its translocation J vector value added is also at a right angle but lying in the z-y 2D plane.

For gravity, above, the J coefficient was intentionally chosen as J_y , and for electric field J_z , and these were chosen as so as to draw attention to results of our viewing the graphs along the z-axis, to a difference between gravity and electric fields as a function of translocation. J effectively adds value of time to the originating Level 1 time value.

CHAPTER 12

CLASSIC RELATIVISTIC EQUATIONS ASSOCIATED WITH TRANSLOCATION

I allege the following 6 macrocosmic classical generalized Relativistic equations are approximations because they contain no J reactance factors nor dipole cyclic phenomena, as I allege they should.

$$(10) \quad m = m_0 \div [1 - b^2]^{1/2}.$$

Mass increases as a function of translocation velocity.

$$(16) \quad g_{\text{field}} = g_{(0)\text{field}} \div [1 - b^2]^{1/2}.$$

Gravity increases as a function of translocation velocity.

$$(17) \quad q_e = q_{e(0)}.$$

Charge remains constant at any translocation velocity.

$$(18) \quad e_{\text{field}} = e_{(0)\text{field}}.$$

Electric field remains constant at any translocation velocity.

$$(19) \quad L = L_0 [1 - b^2]^{1/2}.$$

Length decreases as a function of translocation velocity.

$$(20) \quad t = t_0 \div [1 - b^2]^{1/2}.$$

Time increases as a function of translocation velocity.

$$(21) \quad b = v \div |c|$$

(₀) designates at-rest original value. v = velocity of translocation. $|c|$ = velocity of light in empty free space. The classical math of viewing translocation was derived by FitzGerald, Lorentz, Poincare, and Einstein, and while FitzGerald, in 1889, derived the [longitudinal] relativistic length contraction equation (19) based on translocation in the x axis direction, he did not complete the thought leading him eventually to Relativity as did the others.

Equations (22-25) below are based on x , y , and z coordinates in longitudinal x translocation absent consideration of reactance resulting from that x , y , z translocation nor of the possibility of dipole cyclic phenomena.

In a 1904 paper Lorentz said:

$$(22) \quad x' = k(x - vt) \div [1 - b^2]^{1/2}$$

CHAPTER 12 Continued

$$(23) \quad y' = ky$$

$$(24) \quad z' = kz$$

$$(25) \quad t' = k[t - (vx \div |c|^2)] \div [1 - b^2]^{1/2}$$

$$(26) \quad b = v \div |c|$$

k can be assumed to be 1.

RELATIVISTIC TRANSLOCATION EQUATIONS CONTAINING J REACTANCE

However, if one considers the Planck Scale 4D matrix of Planck Scale dipoles, each k is not equal to 1 unless $v = 0$. To be precise, each J operator coefficient below must be expanded to include cyclic phenomena and which family of AM is being studied.

v of (26) is step quantized as a function of passage across multiple Planck Scale dipoles. The Doppler effect enters the quantization on the bases of sidebands associated with passage of virtual energy components of AM in non-symmetrical clipping at the event horizon of each succeeding dipole's virtual bipolar black holes. A $1/2$ cycle cause quantization of AM sideband components thru takes place in passing thru each dipole from one dipole to the next. Listing each k of (22-25) to include a reactive component absent cyclic phenomena, we have:

$$(27) = (22)k = kx = [J_x](x' - x) + 1$$

$$(28) = (23)k = ky = [J_y](y' - y) + 1$$

$$(29) = (24)k = kz = [J_z](z' - z) + 1$$

$$(30) = (25)k = kt = [J_t](t' - t) + 1$$

The coefficients of the four J operators in (27-30) are themselves axially based. If also made appropriately cyclically based they become a function of step quantized velocity, v . Translocation would then be step quantized with no translocation partial quantum possible in-between dipole quanta steps because of the checks and balances system. k in each of the above equations would thus be quantized.

Also, each J operator component of x , y , z , and t , form as a real quantity summation in the direction of x translocation leaving a reactance relative to a decrease in length and a dilation of time as a function of velocity. In terms of longitudinal AM, during translocation the real quantity summation, in the direction of x formed from the J reactive components of x , y , z , and t , is zero resulting only in a J reactive effect adding to that of the at-rest entity being represented. This is important for it teaches us the reason for dilation of time; an increased mass and gravity as a function of velocity associated with longitudinal AM. Whereas no increase of charge or electric field with velocity associated with longitudinal AM occurs but there is the appearance of a

CHAPTER 12 Continued

magnetic field instead. This is to say, reasons for the two different mechanics come from which of two AM family we are observing in translocation. Thus, a bifurcation of Relativity.

We shall need all of this involvement of translocation of the two families of AM to understand Level 2 fields in translocation and Level 3 at-rest or in translation.

It can be seen from his macrocosmic equations, as Lorentz wrote them, there is no observable change in y or z axes as a function of velocity. This forms the 1st part of a bifurcation of quantized Relativity which 1st part involves the mass family of AM described below, with the charge family forming the second part.

A bifurcation of quantized Relativity results thru which type of step AM complexities upon the dipoles [beyond certain thresholds for interaction] we are dealing with when components of that AM are in translocation, and, upon status of observer.

We shall study this further in mass where we shall include J reactance due to dipole resonance and longitudinal AM, but suffice here to say, the increase in mass or gravity shows up only in the longitudinal direction of x translocation not the transversal of y, z .

ABOUT RELATIVITY

Einstein pointed out in his Theories of Relativity, gravity complies with a Riemann condition, a curvature of space caused by a presence of mass. I have a different methodology to a similar result. Stressed Planck Scale, caused by AM J reactive into and out of virtual bipolar black holes at dipole end-nodes, the second part of a bifurcation of reality, is without regard to mass which has its own unique AM. Gravity can exist without mass -- acceleration generated J reactive gravity. My concept of a stress of length-time as a function of gravity ought not conflict with an Einstein Reality Field.

In studying Planck Scale, I modify Einstein's V Appendix, as regards his concept of "empty space losing its meaning". [See June 9th, 1952, note to 15th ed. of *Relativity: The Special And The General Theory* (1961), supra, at pages vi, and 135, et seq.] If we were to examine space at Level 1, we would see space is not empty but consists of Planck Scale dipoles in a universal matrix.

In this paper, Relativity is shown to be bifurcated and associated with J reactance. I expand upon Relativity as a function of translocation of AM sideband components.

Relativity is a word generally credited to Albert Einstein in connection with his Special and General Theories of Relativity. He won the Nobel Prize in 1921, not for his Relativity but for his law of the Photo-electric Effect. That was a mistake, a black eye upon scientific thought, as I call it, which ought to be corrected even now; for his then Relativity efforts have become a vital part of foundations of all which is now known, and, yet to be knowable.

Relativity, in other context, began before Einstein in the late 19th century with George Francis

CHAPTER 12 Continued

FitzGerald (1851-1901), when he postulated a concept in 1883, an oscillating electric current should produce EM radiation altho he did not demonstrate his hypothesis. However, his concept was later confirmed in 1885 by Heinrich Hertz (1857-1894) who had studied Maxwell's equations in 1883.

James Clerk Maxwell (1831-1879) formulated his four equations (1873) to describe interrelationships between electric and magnetic fields. Maxwell's equations are now most useful in connection with EM radiation field theory, altho they rely upon an ether as a medium.

Apparently, FitzGerald was first to formulate a relativistic equation (**19**) in 1889 explaining failure of Michelson-Morley 1881-7 experiments intended to measure motion of the Earth relative to a stationary ether.

In 1895, Hendrik A. Lorentz (1853-1928) devised essentially the same equation, which then became known as the FitzGerald-Lorentz [length] contraction. Because Lorentz went on to develop other relativistic equations [used in Einstein's Relativity], the name of Lorentz most often comes before FitzGerald as regards naming responsibility for the length contraction equation (**19**).

CLASSIC RELATIVISTIC EQUATIONS MODIFIED BY J REACTANCE

Einstein was unhappy with imaginary numbers saying at one time, "I do not believe in imaginary numbers." But imaginary numbers [i] by another expression are real from the stand-point of overall effect. Hence in my paper, reactive numbers are not imaginary but represent J reactance. To distinguish J reactance from an imaginary [i] number, I use J operators, altho they both equal $(-1)^{1/2}$.

From (**10, 16, 19, 20**) above, the accumulating J value added to at-rest original, as a function of velocity over that of at-rest, decreases back to zero while returning back to zero velocity. Hence it appears there is the potential for J reactance involvement which could be said to express a storage mechanics.

For macrocosmic interpretation of a storage mechanics of J reactance to be complete, value added must be correctly obtained from a Planck Scale viewpoint of resonant Planck Scale virtual dipoles and their virtual bipolar black holes which dipoles are then seen as a matrix.

At the macrocosm level, the term J reactance is a generalized expression unless modified by cyclic coefficients of a Fourier series to become the specific expression.

So said, from the macrocosmic generalized viewpoint, the below four J reactance equations express value added to at-rest original which value added is associated with increased translocation velocity v , and could be interpreted as complying with classical Relativity.

These equations are void of dipole cyclic phenomena and thus void of parity.

CHAPTER 12 Continued

$$(31) \quad m = m_0 + J m_0 \{ (1 \div [1 - (v \div |c|)^2]^{1/2}) - 1 \}.$$

Mass increases J reactively as a function of translocation velocity.

$$(32) \quad L = L_0 - J L_0 \{ [1 - (v \div |c|)^2]^{1/2} - 1 \}.$$

Length decreases J reactively as a function of translocation velocity.

$$(33) \quad t = t_0 + J t_0 \{ (1 \div [1 - (v \div |c|)^2]^{1/2}) - 1 \}.$$

Notice the $+ J$. Time here increases J reactively as a function of translocation velocity away from observer.

$$(34) \quad t = t_0 - J t_0 \{ (1 \div [1 - (v \div |c|)^2]^{1/2}) - 1 \}.$$

Notice the $- J$. Time here decreases J reactively as a function of translocation velocity towards observer.

Then there is the equation for a dilation of time while in an at-rest gravity field as seen by a stationary observer:

$$(35) \quad T = T_0 + T_g$$

PETER - PAUL RELATIVISTIC TIME DIFFERENTIAL PARADOX

If we add dipole cyclic coefficients of a Fourier series to the above equations (31-34), J reactance would truly play a part in the so-called Peter-Paul Relativistic time differential paradox resulting in accuracy of equations (31), (32), (33), and (34).

(35) is not translocation J reactive based, meaning moving out of a non-reactive gravity field does not give back accumulated dilation time which would be the case if it were J reactive acceleration-gravity in a return trip. Peter is said to stay on Earth while Paul rockets off into space and upon returning, Paul, classically it is said, has not aged as much as Peter, because it is said Paul's space clock has not run as fast as Peter's Earth clock due to Relativity.

The said classical Relativity created time differential paradox can be addressed in terms of $\pm J$ reactive time, as in (33) and (34) modified by cyclic phenomena if accuracy is to be maintained, but they are 1st approximation time dilation equations. Paul's going and coming time line now can be said to be composed of three components, real time and reactive $+J$ and $-J$ time.

The $-J$ indicates going out slowing Paul's clock and the $+J$ indicates coming back quickening his clock, so going out and coming back results in precise cancellation of the J reactive components of going and coming. In that case, both clocks brought together would show the same elapsed time if other factors were not vectored in such as Paul traveling thru non-reactive gravity fields which change the results via combining (33) and (34) with (35) making:

CHAPTER 12 Continued

$$(36) \quad T = T_0 \pm J T_0 \{ (1 \div [1 - (v \div |c|)^2]^{1/2}) - 1 \} + {}_{go}T_g + {}_{come}T_g .$$

While Paul travels going and coming thru the same non-reactive gravity fields, time dilation for him occurs both ways because going non-reactive gravity time added, ${}_{go}T_g$, is not returned with a minus sign upon coming back [due to gravity's even-parity]. Also, it has no J reactive component, so the plus sign of ${}_{go}T_g$ remains unchanged coming back and is additive making:

$$(37) \quad {}_{go-come}T_g = {}_{go}T_g + {}_{come}T_g .$$

This says nothing about the fact Peter is in Earth's gravity field causing dilation of his time. If Paul's time dilation in space-non-reactive gravity fields equals Peter's Earth non-reactive gravity field time dilation then the two clocks record time the same amount. But if Paul goes thru no non-reactive gravity fields it would mean Paul's clock has not recorded as much time as Peter's clock in Earth's gravity.

Of course none of the above equations are complete and are not valid in and of themselves until dipole resonance, non-reactive AM, directional data (angle AM), and J reactive amplitude AM, are vectored in.

CERN TIME EXPERIMENT

“An experiment performed in 1966 in an accelerator at CERN near Geneva, Switzerland... the travelers [Pauls] were unstable elementary particles called mu mesons confined by means of magnetic fields to move in circular paths with velocities 99.6% of light speed. The returning muons were found to be younger; that is, to have decayed more slowly, than muons at rest in the laboratory [by a factor of 12]. Thus, both experiments and a correct application of theory, verify there is no clock paradox.” Ed. Ins. *The Grolier Multimedia Encyclopedia* (CD-ROM (1999)).

An example of what can transcend from a study of quantum matrix reality, consider my allegation there may be a problem with interpreting that data, and, theory was perhaps misapplied. While the mu mesons at-rest have aged at a normal rate, the translocating muons upon returning are said to have aged more slowly. That said slowing of aging [time dilation] could partially be as a result of the mu mesons translocating thru the mediums of magnetic and electric fields [plus a tiny modification due to translocation thru the Earth's gravity] beyond the certain thresholds for interaction. Time dilation in that experiment ought not be confined to translocation solely within the bounds of the theory of velocity Relativity. The experiment included passage thru those fields, I say, which of themselves contributed to said time dilation.

Additionally, passage thru the fields could have resulted in a modification of the moving mu mesons' internal structures [such as changes in quark orbits as a function of intensity of passage thru the fields and their interaction with and between the quarks] causing a finite nuclear decay rate change. I feel the experiment was uninterpretable in terms of said time dilation due solely to velocity, said doings of the theory of Relativity.

ABOUT LENGTH AND TIME IN RESONANCE OF DIPOLES

From the equations above, variations in dipole time progression can be visualized as a function of the two types of parity, intensity of gravity, and translocation, depending on views at macrocosm and Planck Scale. Even tho time in a dipole is in oscillation, there is a significant difference attributed to this matter of parity as to how to graphically display and to factually view time dilation.

For purposes of 2D graphing time dilation, J reactive time value added to original, in the presence of at-rest gravity, we resort to an even-parity display looking similar to gravity in translocation but (z) is rotated at minus ϕ . For purposes of a description of factual time dilation we resort to time's Planck Scale odd-parity. The difference between these seeming contradictions is because J reactive time value added to original time requires we not include cyclic phenomena in our 2D graph which is drawn as tho at the macrocosm level, and for that display we rely on even-parity. Whereas, if we include dipole cyclic effects of time, we now are in a description mode at the Planck Scale level requiring odd-parity.

Previously, I addressed the matter of time odd-parity. In the Planck Scale dipole, the 2D length-time are both in resonance existing together in the dipole. While length oscillation reflections, from dipole end-nodes and virtual bipolar black hole horizons, are even-parity, time oscillation reflections are odd-parity. This odd-parity aspect of time is derived mathematically from Minkowski's equation (1) at $[-]dt^2$ modified to include cyclic effects. Dipole time resonance odd-parity is not to be confused with the odd-parity of the transverse charge family of AM, no more so than dipole length resonance even-parity is to be confused with the even-parity of the longitudinal mass family of AM.

Longitudinal odd-parity of dipole oscillating time gives rise to the phenomena of forward progression of time each $\frac{1}{2}$ cycle of the dipole as an infinite progressive summation whereas even-parity of dipole length gives rise to repeating the same dipole length over and over again, no summation.

The below statement was signed by 190 persons and sent to Vice President Dick Cheney and other members of President Bush's National Energy Policy Development Group. The Group included Energy Secretary Spencer Abraham and other members of the President's Cabinet. The Statement was also sent to key members of Congress.

As of May 2006, the 1990 created "Board" [SEAB] is no more. While the President promises we can not sustain imports of energy we are in no position to create energy ourselves enough to sustain our uses of energy. Not unless we scientists get our acts together and R & D new sources of energy. Fusion is on the horizon and it is up to scientists to bring that view into our lives—soon, very soon.

STATEMENT ON FUSION AND ENERGY POLICY FEBRUARY 2001

Today, our nation is urgently searching for solutions to the power shortfall in the Pacific Coast region. While the immediate problem has many contributing causes, energy supply is essentially a long-term issue. We must not only react to recurring crises but also prepare for the future. In addition to acting to ameliorate the immediate problems, we urge you to address the nation's long-term energy needs through creation and funding of a focused R&D effort to expand our future commercial energy options.

We advocate an expanded, sustained energy R&D effort to provide the United States and the world with the energy it will need for the 21st century. The focus of this effort should be to provide new economic and environmentally acceptable energy technologies as soon as practical. The options that present themselves for mid-term application include advanced technologies for improving energy end-use efficiency, cleaner burning of fossil fuels, improvements in nuclear fission technologies, and less costly and more efficient renewable energy options. For the long term, we urge an accelerated effort to develop fusion energy.

Fusion power plants, when developed, offer a number of specific advantages, including an abundant fuel supply, no air pollution and much reduced risk from hazardous radioactive materials. At present, the United States has an excellent but underfunded scientific research program on fusion. Other nations, notably Japan and the European Union, pursue both scientific research and also a focused development strategy aimed at eventual commercialization.

We urge the United States to strengthen greatly its research into the fundamental science and advanced technology of fusion energy and to prepare a strategic plan for the realization of practical fusion energy as an important element in a long-term, environmentally responsible energy development strategy.

On August 9, 1999, the Fusion Energy Task Force of the Secretary of Energy's Advisory Board

(SEAB) completed and delivered its Final Report: “Realizing the Promise of Fusion Energy”. This report concludes: “...the threshold scientific question — namely, whether a fusion system producing sufficient net energy gain to be attractive as a commercial power source can be sustained and controlled — can and will be solved.”

The report also noted that U.S. funding for fusion energy research is “subcritical” at this time. We very much appreciate your efforts to establish a responsible energy research and development policy for both the near and long term, to prevent recurrence of our present energy supply difficulties.

*** SONOLUMINESCENCE: HOW BUBBLES TURN SOUND INTO LIGHT**

S. J. Putterman¹ and - K. R. Weninger¹ -

¹Physics Department, University of California, Los Angeles, California 90095

email: putterman@physics.ucla.edu

Abstract

Sonoluminescence, the transduction of sound into light, is a phenomenon that pushes fluid mechanics beyond its limit. An initial state with long wavelength and low Mach number, such as is realized for a gas bubble driven by an audible sound field, spontaneously focuses the energy density so as to generate supersonic motion and a different phase of matter, from which are then emitted picosecond flashes of broad-band UV light. Although the most rational picture of sonoluminescence involves the creation of a “cold” dense plasma by an imploding shock wave, neither the imploding shock nor the plasma has been directly observed. Attempts to attack sonoluminescence from the perspective of continuum mechanics have led to interesting issues related to bubble shape oscillations, shock shape instabilities, and shock propagation through non-ideal media, and chemical hydrodynamics. The limits of energy focusing that can be achieved from collapsing bubbles in the far-off equilibrium motion of fluids have yet to be determined either experimentally or theoretically.

END OF VOLUME ONE