

# The Quantum Nature of Matter and Energy as a Function of the Ether

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## Abstract

The intention of the article is to relate an Ether Theory with the formation of matter, the quantum nature of the matter and energy, the rest and relativistic inertial mass of the electron [matter], and finally matter's interaction with electromagnetic radiation.

## Introduction

Einstein's Relativity Theories and Quantum Mechanics are two disconnected individual worlds; furthermore their mathematical formulas are irreconcilable with one another. However intuition tells us that the macro-world of Relativity and the micro-world of QM are a part of only one common Universe. Consequently, there should be a single unified theory that describes both worlds. My previous papers related the assertion of the Ether to the world of Relativity. Alternatively this paper is an attempt to extend the notion of the Ether to the micro world of Quantum Mechanics [QM], thus uniting both worlds. Additionally, the intention of this article is to demonstrate that the quantum nature of matter and energy are in fact a product of the Ether.

In order to appreciate this paper one can refer to previous papers titled The New SRT, Inflowing Space, and the Resurrection of the Ether [Part 1] and Consequences of the New SRT, Inflowing Space and the Resurrection of the Ether [Part 2]. Additionally, one can review other published papers in The Proceedings of the Natural Philosophy Alliance [2006] Vol. 2 No. 2 pp. 282-297. With reference to those papers there is an assumption of a preferred frame or in other words the Ether. This manuscript requires an acceptance of that hypothesis.

## Quantum Mechanics

Quantum Mechanics [QM] successfully predicts the outcome of particle physics/subatomic physics with extreme precision; nevertheless the actual physical mechanism as to how this occurs is obscure. In essence there is a set of logical input concepts, as well as logical output concepts, each of which is represented by mathematical equations. Nevertheless their cause and effect relationship is incomprehensible. In other words visually rational input concepts enter a black box where they are mathematically manipulated to produce other rational output concepts. Even so, there is no intuitive cause and effect connection for those results, rather only very complex mathematical interrelationships.

To recap; *Quantum theory provides a method of calculating the results of any experiment we can imagine but it gives us no picture of*

*what is going on to produce these results. Quantum reality would be some kind of model or picture that explains the quantum results, some story we can tell ourselves about "what is really happening" behind the scenes." Nick Herbert [quanta@cruzio.com](mailto:quanta@cruzio.com)*

Furthermore many of the consequences derived from QM are irreconcilable with intuitive reality, such as the simultaneous existence of a single sub-atomic particle at two different locations at once. On the other hand, this manuscript will utilize an Ether model to demonstrate that the quantum nature of matter and energy are in fact a function of the Ether, what is more using common sense illustrations.

In order to demonstrate this postulate, I have chosen to use a modified Bohr model of the atom. A Quark model was considered; however a Quark explanation is so complex, that it would be very difficult to grasp. So in order to illustrate this proposal an adapted representation of the Bohr atom is used, generally although not exclusively the electron, whereby it represents matter. Bear in mind; the electron is a fundamental particle with respect to both models. Consequently the premises which are used to describe the modified Bohr model can be equally applied to the quark model as well.

For ease of explanation this article will be divided into eight sections.

**Section 1:** Matter as a Function of the Ether

**Section 2:** Inertial Mass as a Function of the Ether

**Section 3:**  $E = mc^2$  as a Function of the Ether

**Section 4:** The Quantum Structure of the Atom as a function of the Ether

**Section 5:** Double Slit Experiments as a Function of this New Theory

**Section 6:** Matter and its Interaction with electromagnetic radiation [EMR] as a Function of the Ether.

**Section 7:** Acceleration of the Electron as a function of the Ether

**Section 8:** The New Theory compared to QM

## 1. Matter as a Function of the Ether

Einstein's Relativity Theories presumes that there is no Ether, which leads to irrational concepts, such as the twin paradox problem as well as the quandary of simultaneity. In contrast,

my previous published papers [The Proceedings of the Natural Philosophy Alliance [2006] Vol. 2 No. 2 pp. 282-297] utilized the idea of the Ether to postulate an alternative form of Relativity, simple to imagine, moreover consistent with common sense reality, whereby the above irrationalities no longer exist.

In the same way, it is much easier to illustrate this new model of the electron [matter] presuming the existence of the Ether. For that reason, the following attributes concerning the nature of matter and energy as a function of the Ether are postulated. While we're on the subject, in so doing Relativity is then united with Quantum Mechanics through the common assumption of the Ether.

- Electromagnetic radiation [EMR] consists of a wave of the Ether traveling through itself, to some extent analogous to how water waves traverse through water. In addition EMR is constructed from alternating right angle electric and magnetic fields moving through the Ether at the velocity of  $c$ , furthermore in packets called photons [See image 12.

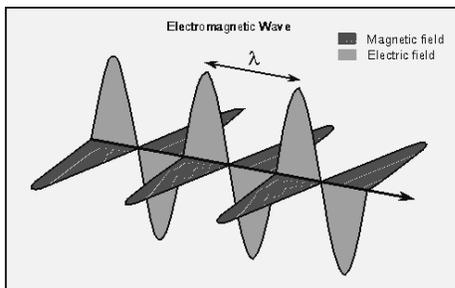


Figure 1 from Wikipedia

- [See image 13] An electron [matter] is essentially a reorganization of the electric and magnetic fields of EMR. In other words, EMR's linear momentum traveling through the Ether at velocity  $c$  is converted into angular momentum, due to the fact that it spins upon itself, thus transforming into an electron [with spin], nevertheless now at rest or else near rest with the Ether. In addition, the EMR'S electric and magnetic fields rearrange, to form a central spherical radiating electric field surrounded by a circular magnetic field as illustrated in image 13.

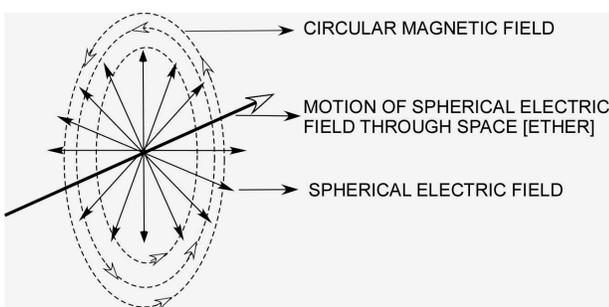


Figure 2

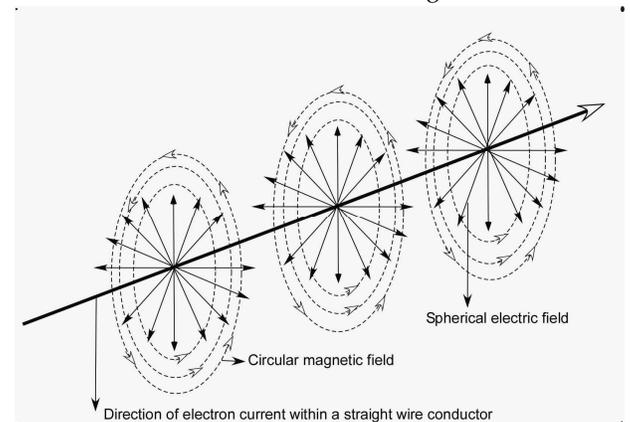
*The electron is constructed from a spherical central radiating electrical field along with a circular magnetic field, the latter oriented perpendicular to its motion through space [Ether]. There is no particle, rather only fields.*

- What is more, this transformation only occurs with respect to a precise packet of energy [e.g. .511 Mev.] or in other words a quantum. As a speculation the direction of the spin of the EMR [photon] as it transforms into an electron, could be related to the orientation of the spin of the electron whether up or down.
- The electron is not a particle with associated fields; rather the fields are the electron, just as EMR consist of only fields. Essentially there is no electron particle rather only fields. The notion of a particle is only a *perception*, which occurs when the fields of the electron interact with the fields of other electrons, protons or photons but only at a specific location. Essentially this interaction at a given location on a detector is perceived by the observer as a particle
- In the same way, all other subatomic structures [protons, quarks] are constructed from electromagnetic radiation, because they too are interchangeable with EMR.
- To recap; the constituents of matter; [electrons, protons and quarks ECT] can morph into electromagnetic radiation and vice versa. In essence, both matter and EMR are constructed from the same electric and magnetic fields, although with a different arrangement, along with a dissimilar velocity with respect to the Ether. In addition this transformation occurs in given packets of energy. For example given the proper circumstances a .511 Mev photon [EMR] traveling through space at  $c$ , curls and spins upon itself, thus transforming into a spinning electron at rest with the Ether. Because this bidirectional transformation occurs only at specific values of energy, moreover in packets, it is a part of QM.
- When an electron and proton attract one another, because of their opposing electric fields to form an atom, their magnetic fields also interact, moreover in a very complex manner. Additionally the electron's opposing spins, within the orbital shells, generate opposite magnetic fields, so this is a part of the interaction as well. For all these reason, the electron [or electrons] does not orbit the proton [nucleus] analogous to how a planet orbits the Sun. Instead it orbits the nucleus in a "random like" orbital pattern.
- This new model further postulates that the complex interacting fields, created by all of an atom's proton and electrons are in a stable state of equilibrium, which is what holds them together. In essence this equilibrium produces what we call an atom. Alternatively all other states are unstable, so in this later setting the fields decay into a new equilibrium point. What is more, different elements possess other stable equilibriums points. These dissimilar

stabilization points represent the elements, moreover also the quantum nature of matter.

- In the same way molecules as well as other much larger structures including life are other stable equilibrium points involving large numbers of atoms.
- In summary what all this means is that space, a vacuum, or what we consider “nothing at all” is in fact by far the most fundamental “stuff” of the Universe. Now if this “stuff” or else Ether becomes a wave that traverses through itself at a velocity  $c$ , we call it electromagnetic radiation. If at certain fixed packets of energy instead of traveling through itself with linear momentum, it curls upon itself, moreover spins with angular momentum, then it transforms into matter [e.g. an. electron]. In essence, the matter of the Universe is constructed from what the majority of individuals would consider as “nothing at all”, or in other words, the term Ether. Incidentally the term Ether makes more sense, given that it signifies something rather than nothing
- Nevertheless this process is significantly more complicated. For instance Einstein’s Relativity hypothesizes that an electron at rest with the observer consists of only an electric field. What is more, an electron with a velocity relative to the observer possesses both an electric field as well as a magnetic field. Furthermore the greater the velocity, the greater is its magnetic field [exponential function].
- As a corollary, moreover assuming the existence of the Ether, then an electron at rest with the Ether consists of only a spherical radiating electric field, and an electron traveling with a velocity with respect to the Ether possesses both a spherical electrical field and a circular magnetic field. Again the greater the velocity then the greater is the magnetic field [exponential function] until they become equal at the speed of light, once again relative to the Ether. What’s more the plane of the circular magnetic field’s plane is oriented perpendicular relative to its motion through the Ether
- A different and more likely model, again considering this new theory, is that an electron at rest with the Ether possesses both a central spherical radiating electric field as well as a circular magnetic field, which represents its primary structure, as illustrated in figure 2. Furthermore when the electron is at rest with the Ether, the circular magnetic represents its magnetic moment, even though not analogous to a spinning top with a North and South Pole. On the other hand when an electron possess a velocity with respect to the Ether, then the primary circular field increases, what's more its plane reorients perpendicular with respect its motion through the space [Ether].
- The notion that the plane electron’s circular magnetic field is oriented at a right angle with respect its motion through the Ether is discussed in greater detail in my paper titled; A

New Model of the Electron that Unifies Classic Physics with Quantum Mechanics. The entire concept is too long to portray within this article, nevertheless a brief synopsis is as below. It is a known fact that the magnetic field induced by an electron current, located within a straight wire conductor is that of a circle. This configuration is the sum of the shape of the magnetic field of each electron of that current. Therefore common sense tells us that if the shape of the magnetic field surrounding a straight electron current is a circumferential, moreover oriented at a right angle relative to the current’s direction, then the shape of the magnetic field surrounding each individual electron of that current is also that of a circle. What is more, the plane the circular magnetic field of each electron is also oriented at a right angle with respect to its motion through the Ether or in other words the direction of the current. As shown in figure 3, the summation of the circular magnetic field of each electron, within the straight wire conductor, produces the currents overall circumferential magnetic field.



**Figure 3**

Figure 3 illustrates, with respect to a straight wire electron current, that the summation of the magnetic field of each electron of that current is what produces the typical overall circumferential magnetic field classically associated with a straight wire conductor. Additionally because there are an equal number of electrons and protons, within the conductor, there is no overall electric field, as these opposing electrical fields counteract one another. Additionally, all the opposing magnetic fields produced by the electrons and protons including the opposite spinning electrons counteract another, with the exception of the magnetic fields produced by the similarly aligned [spinning] unpaired outer shell electrons which are traveling linearly in the same direction = the electron current and its associated circular magnetic field

## 2. Inertial Mass as a Function of the Ether

This new theory assumes that as the velocity of an electron increases, moreover as it approaches the speed of light relative to the ether [ $c$ ], then its relativistic inertial mass increases exponentially. In the same way, as the velocity of an electron increases, furthermore as it approaches the speed of light, relative to the ether, then its circular magnetic field also increases exponentially. Take note of the identical

relationships. For that reason this new theory postulates that the electron's augmented magnetic field, represents its increased relativistic mass, compared to its rest state [0 velocity relative to the Ether].

This concept was obtained from the article titled. Fundamental Nature of Relativistic Mass and Magnetic Fields authored by Paul Marmet published in the International IFNA-ANS Journal "Problems of Nonlinear Analysis in Engineering Systems" No.3 (19), Vol.9, 2003 Kazan University, Kazan city, Russia. Dr Marmet's abstract is given as below.

*Relativity theory gives a relationship predicting the increase of mass of relativistic moving particles, but no physical model has been given to describe the fundamental physical mechanism responsible for the formation of that additional mass. We show here that this additional kinetic mass is explained by a well-known mechanism involving electromagnetic energy. This is demonstrated taking into account the magnetic field generated by a moving electric charge, calculated using the Biot-Savart equation. We show that the mass of the energy of the induced magnetic field of a moving electron is always identical to the relativistic mass  $M_0(\gamma-1)$  deduced in Einstein's relativity. Therefore the relativistic parameter  $\gamma$  can be calculated using electromagnetic theory. Also, we explain that in order to satisfy the equations of electromagnetic theory and the principle of energy and momentum conservation, toroidal vortices must be formed in the electric field of an accelerated electron. Those vortices are also simultaneously compatible with the magnetic field of the Lorentz force and the well-known de Broglie wave equation. This leads to a physical description of the internal structure of the electron in motion, which is at the same time compatible with the Coulomb field, the de Broglie wavelength equation, mass-energy conservation and with the magnetic field predicted by electromagnetic theory. That realistic description is in complete agreement with all physical data and conventional logic. The paper concludes with an application, which is a first classical model of the photon, fully compatible with physical reality, without the conflicting dualistic wave-particle hypothesis.*

To recap, as an electron's velocity increases relative to the Ether, the augmented magnetic field that is produced results in an additional resistance to its acceleration by force. Essentially the electron's relativistic inertial mass is a function of this process.

This novel concept is easily perceived when visualizing a single electron, nevertheless not apparent with non ionic matter. However recall, matter is typically constructed from both electrons and protons, moreover containing counteracting electric fields. So presuming identical numbers of electrons and protons, the equal electric fields will counteract one another. So there is no overall electric field.

What is more, the proton and electrons possess unequal magnetic fields. Even so both electrons and protons also possess different opposing spins [e.g. up, down], so again opposite magnetic fields. In essence, taken as a whole, all

these very complex opposing magnetic fields negate one another. As a result the object's [matter] overall magnetic field is again null.

Now as force accelerates matter, relative the ether, its relativistic inertia mass increases. So with respect to this model, there is a symmetrical increase of all of the intricate, moreover counteracting magnetic fields, produced by all the protons and electrons including their opposing spins. Therefore taken as a whole, even though still present, the opposing magnetic fields mask one another. Thus from the perspective of the observer, the only remaining perception is the object's increased Relativistic inertial mass.

### 3. E = mc squared as a Function of the Ether

Einstein's equation of  $E = mc^2$  presumes that energy and matter are equivalent as well as interchangeable. Mathematically this notion is simple. Nevertheless it is very difficult to visualize a non mathematical physical visual model whereby this process actually occurs. In contrast with respect to this new theory, it is fairly easy to envision. Fundamentally it involves two separate processes.

This first process is the transformation of electromagnetic energy [EMR] into subatomic particles, which only occurs with respect to given packets of energy such as .511 Mev, whereby it transforms into the electron. This action produces the inertial rest mass of the electron, which is of our simplified model.

The second process is related to the fact that when the inertial rest mass of the electron increases its velocity relative to the Ether, then as it approaches the speed of light; its magnetic field exponentially increases. In essence, the augmented magnetic field, which is energy, is that entity which creates or in other words is the electron's increased relativistic inertial mass.

Observe with reference to both scenarios, one can easily envision the actual physical mechanism whereby energy is related to inertial rest mass of the electron as well as inertial relativistic mass of the electron, or in other words the physical visual mechanism by which  $E = mc^2$ .

### 4. The Quantum Structure of the Atom as a function of the Ether

This new model uses the assumption that both matter and EMR are only electric and magnetic fields, and the postulate of the Ether, to create a modified Bohr model of the atom, which is analogous to the electron cloud model of the atom [QM]. In other words as illustrated in diagram 4 the classic Bohr Model on the left is transformed into the QM model on the right. What is more, this section demonstrates how the new proposed field model of the electron can be incorporated into the quantum nature matter and energy.

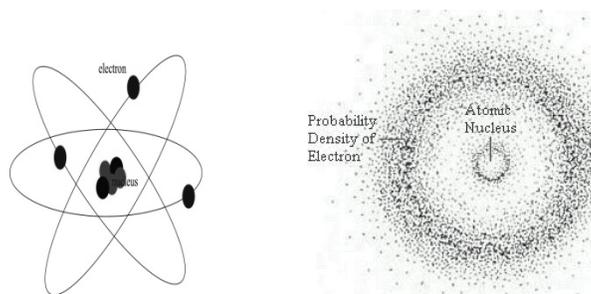


Figure 4 from Wikipedia

In order to demonstrate this last concept, the following attributes are again described.

- Matter [electrons and protons] is constructed from electromagnetic radiation [fields], which given the proper circumstances, instead of traversing linearly thru space at  $c$ , curls and spins upon itself, thus transforming into matter [charged particles] with spin. This includes positively charged protons as well as negatively charged electrons which can attract one another.
- When an electron and proton attract and orbit one another, due to their opposing electric fields to form an atom, their magnetic fields also interact in a very complex overall manner. Bear in mind, the magnetic fields generated by protons [quarks] are much weaker than the magnetic fields generated by electrons. Nevertheless the electron's opposite spins within orbital shells also generate opposing magnetic fields; accordingly this is a part of the complex interactions as well. Therefore taken as a whole an atom consists of a balance of all of its electric and magnetic fields which are in a stable state of equilibrium.
- Therefore given the above postulate then an electron [or electrons] does not orbit the proton [nucleus] analogous to how a planet orbits the Sun. Instead it orbits the nucleus in a "random like" orbital pattern.
- What is more an electron is constructed from only electric and magnetic fields. Take note of; neither field is located at a precise location with respect to space. In theory these fields could extend to infinity, although this may not be factual. Regardless, the electron's two fields are spread out over an area and volume. Essentially, there is no one specific point with respect to space, whereby one can say the electron exists, rather only a region.
- Given these two assumptions of random motion and lack of locality, then when an electron orbits its nucleus, integrated over a short period of time, it forms a cloud around the nucleus, analogous to the Quantum Mechanics model of the atom.
- Once more the electron has no precise point location with respect to space [Ether], nor does it have a given specific orbital path, rather only "random like" orbital motion. Therefore experimentally one can only determine a probability

of its location. What is more, experimentally one can determine only a probability of its velocity. Observe by using these assumptions the classical Bohr Model becomes the modified Bohr Model, which is analogous to the cloud model of QM.

- This new theory postulates that the complex interacting fields, created by all of an atom's proton and electrons are in a stable state of equilibrium, which is the atom, because this process is what holds it together. In contrast all other states are unstable, so in this latter scenario the atom decays into a new equilibrium point. Additionally different elements are associated with other stable equilibrium points. Furthermore, the stable equilibrium points for some elements are extremely complex. Accordingly, as depicted in figure 5, the stable interacting fields [elements] can form odd configurations, such as a donut or a bar bell, just like QM. Incidentally the different de Broglie wavelengths of the orbiting electrons are also a part of the stable equilibrium point.

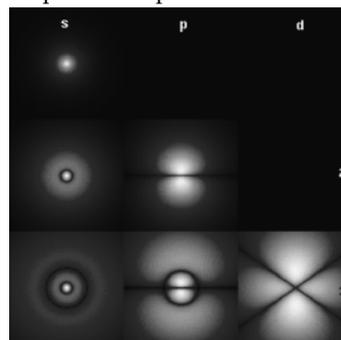


Figure 5 from Wikipedia

In other words different elements are associated with unrelated stable equilibriums points, represented by diverse configurations of their complex interacting and orbiting electric and magnetic fields. Once again this concept is consistent with QM

- In the same way molecules as well as other larger structures are also stable equilibrium points involving large numbers of atoms. .
- This same model is applicable to protons, neutrons as well as quarks. For example, each subatomic unit of the nucleus possesses its own electric field, magnetic field and strong force field. All these complex fields interact with one another to form the nucleus, once again only with respect to specific stable equilibrium points. This makes more sense if one assumes that the quarks orbit each other, or in other terms the protons and neutrons orbit each other. In essence, these different stabilization points associated with the fields of differing numbers of protons, neutrons or alternatively quarks represent the nucleus of each type of element.
- However bring to mind, some elements decay into other elements. Consequently for this specific scenario the equilibrium point for that type of atom is not absolutely stable over time. For example, generally the complex interacting fields produced by all the subatomic units are stable.

Nevertheless, on an extremely rare occasion, as they interact, the total configuration assumes an unstable form. So when this occurs, a subatomic unit, a photon, or both is ejected from the nucleus. At the same time, the remaining subatomic nuclear units rearrange to form a new stable equilibrium point. Once more, this concept is consistent with QM.

### 5 Double Slit Experiments as a Function of this New Theory

Yet again matter [electrons and protons] and energy [EMR] are constructed from only electric and magnetic fields, which exist over an area and volume, what's more not with respect to a particular point in space. This fact explains the outcome of the double slit experiments of QM, whereby the dual waveform/particle nature of matter and energy is supposedly demonstrated. This is because the spread out radiating electric/ magnetic fields of an electron, a proton, and a photon, are able to traverse through both slits simultaneously. However take note of; for this to take place, then the true dimension of these entities [fields] must necessarily be a great deal larger than our assumed perception of them. Otherwise they could not pass through both slits at the same time. Furthermore even though the fields traverse through both slits concurrently, the "major portion" of the electric field/magnetic field is associated with only one of the slits. We still define this 'major portion' as a particle even though it consists of only fields.

What is more, after these electric/magnetic fields pass through both slits concurrently the two separate parts subsequently recombine in a very complex manner. As a consequence, when they interact with the detector at its surface its forms an alternating spread out pattern interpreted by the observer as wave. In contrast, if these fields interact at only one specific point on the detector's surface, then this action is perceived by the observer as a particle, even though there is still no particle.

The observed difference of perception is related to the manner in which complex fields interact with one another as well as with the detector. On one hand, if electric/magnetic fields are disrupted by the two slits, and then recombine in such a way to as to interact with the detector in an alternating spread out pattern, then this procedd will be perceived by the observer as a wave. On the other hand, if there is no slit or alternatively only one slit, then the interaction of the two fields is more stable. So at the detector's surface their interaction with the detector takes place at only one specific location, accordingly perceived by the observer as a particle.

In addition if the "major portion" of the electric/magnetic field is "observed" at the position of only one of the two slits, then this interaction modifies it. So later after it recombines with the other portion, subsequent to its passage through the other slit, then the two parts no longer interact with each other in the same, or for that matter with the detector at its surface.

In this specific instance, the interaction at the detector's surface then takes place at only one specific location [particle] instead of a spread out alternating pattern [wave].

### 6. Matter and its Interaction with EMR as a Function of the Ether

This new theory postulates that an electron's relativistic inertial mass is a function of its velocity with respect to the Ether. Consequently the greater the velocity, the greater is the magnetic field, and so the greater it's relativistic inertial mass. Let us at this time illustrates what happens when electromagnetic radiation [a photon] interacts with an electron which is orbiting a nucleus. Essentially the EMR adds energy or in other words orbital velocity to the electron, relative to the nucleus, but also and this is important relative to the Ether. Now if the electron's increased orbital velocity is sufficient enough to achieve a new equilibrium point; then it will jump into the next outer shell. What this signifies is that, relative to the Ether, the outer shell electrons possess a greater velocity compared to the inner shell electrons, consequently a greater magnetic field and for that reason a greater relativistic inertial mass. In addition because the outer shell electrons possess a greater magnetic field compared to the inner shell electrons, then of necessity the electron shells of the atom must be progressively larger the further from the nucleus. This configuration is a part of the equilibrium state. Conversely if an outer shell electron falls back into a lower shell, then it will give up some of its velocity, thus some of its magnetic field in the form of a photon, hence some of its relativistic inertial mass.

In addition, EMR can exist as an uninterrupted wave of any wave length, frequency and amplitude. For instance, a free electron persistently vibrating [acceleration] with respect to space [Ether] produces a continuous electromagnetic wave devoid of packets called photons. In contrast, EMR in another of its forms exists as discrete unit called a photon or quanta. For example electrons and protons are created from discrete energy packets of EMR and vice versa. As a result these photons exist as packets of EMR [quanta] rather than a continuous wave. In essence, the packet nature of EMR is a function of quantum nature of EMR when it is converted to matter and vice versa or else related to EMR's interaction with matter in quantum steps. Fundamentally the central idea of this last concept is this; EMR can exist as a continuous wave, or alternatively in discrete packets called photons.

### 7. Acceleration of the Electron as a Function of the Ether

When an electron is accelerated by force in outer space [Ether] it generates electromagnetic radiation. This new theory postulates that it is the interaction of the accelerated electron with space [Ether] that produces that radiation. In contrast when an electron orbits a proton it undergoes acceleration, yet there is no production of electromagnetic radiation.

Standard physics cannot give explanation to this incompatibility. Then again, by using this Ether model it can be clarified. For example, when an outer shell electron is accelerated around its nucleus it can spontaneously emit a photon, moreover at the same time it decays into the next inner shell, assuming it is open, otherwise it cannot do so. In contrast an inner shell electron cannot jump into an outer shell without the input of energy.

In other words, with respect to this Ether model, as the outer shell electron undergoes acceleration as it orbits the nucleus, it can emit EMR [photon] analogous to the accelerated electron in outer space. By doing so it drops into a lower shell, a lower energy/velocity, thus a lower relativistic inertial mass. This is the new equilibrium point. On the other hand if there is no open lower shell, then the orbiting electron is blocked from this path, so in that case it does not emit EMR. Therefore, when the electron exists in its lowest energy state it cannot spontaneously emit a photon as it orbits [acceleration] the nucleus. This concept gives new explanation for why an electron orbiting a nucleus can spontaneously emit a photon, comparable to the scenario in outer space, even so not in all cases depending upon whether or not there is an open lower shell. This model a very simplified version of what really happens; given the fact that the atom has a very complex internal field structure

### 8. The New Theory vs. QM

Fundamentally this new model is analogous to although not precisely identical to QM for there are numerous differences many of which are described below

- The new theory postulates that EMR consists of a continuous unbroken wave of undulating right angle electric and magnetic fields or alternatively as discrete packets called photons. In addition EMR interacts with matter only in discrete packets or quanta. In contrast with respect to QM EMR only exists as quanta.
- The new theory postulates that both matter and EMR are constructed from only fields. Basically there is no particle. When the electric/magnetic fields interact with the detector to form a spread out alternating at the detector's surface we call it a wave. In contrast when these fields interact at a specific location at the detector surface without an alternating pattern we call it a particle. In essence with reference to this new theory there are only fields and no particle. On the other hand with respect to QM there is an assumed dual nature for both matter and energy
- With regards to QM the specific properties of EMR and electrons are present only when observed, whereas with respect to the new theory, the properties of EMR are intrinsic to its structure, therefore not dependent upon the observer.
- The electron [our example of matter] consists of a central radiating spherical electrical field surrounded by a circular

magnetic field. In addition, matter interacts with EMR in discrete packets. Both this new theory and QM involve quanta; however in contrast to QM the quanta of this of the new theory are a function of the Ether as portrayed below in figures 6 and 7.

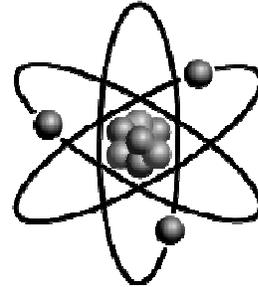


Figure 6 from Wikipedia

The electrons and protons [quarks] of the atom are produced from discrete packets of EMR called photons and vice versa [quanta]. The atom forms because of complex interactions involving electric and magnetic fields, produced by all of its subatomic particles which are only stable at specific equilibrium points. Observe these interactions are all quantum in nature, moreover all quanta are ultimately derived from the Ether

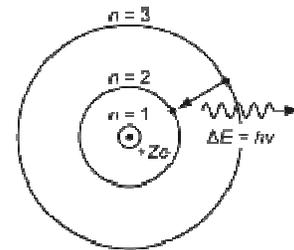


Figure 7 from Wikipedia

As the electron drops from the outer shell into the middle shell equilibrium state, it surrenders some of its magnetic field in the form of an emitted packet of EMR called a photon. Furthermore, since the electron's velocity relative to the Ether then decreases, its relativistic mass also decreases. Again observe these are all quantum interactions moreover all quanta are ultimately derived from the Ether

- If one assumes this new quantum like model of energy and matter is accurate, then conceivably classic QM is only an alternative mathematical interpretation of this new novel theory, because QM can only describe the electron in terms of position and momentum wavefunctions, yet not its true physical nature. As a result, even though QM can mathematically predict atomic and subatomic interactions, it does not precisely describe the actual physical shape of the atom or for that matter EMR. Perhaps this disparity is the reason why it is difficult to translate what is essentially the advanced mathematics of QM into words or images that actually make sense. In essence;
 

“just because we have a mathematical formulae that allows us to calculate and predict properties of an atom, this does not mean that the wavefunction is a mathematical description of the atom or worse still that the waveform is the atom”. [Quantum A Guide for the Perplexed pg 80 by Jim Al-Khallili]

With reference to my previous papers, the preferred frame [Ether] located far from any large astronomical object is equal to the isotropy of the microwave background radiation. Additionally the preferred frame at the Earth's surface is equivalent to the velocity of the inflow of space towards Earth [11.2 Km/sec]. Generally although not exclusively, I did not incorporate these assumptions into this article because the descriptions and illustrations of the new theory would then have been extremely complicated; therefore very difficult to comprehend. Nevertheless the concepts which are described in this manuscript, which are fairly easy to appreciate, still apply to the above preferred frames.

The rationale for mentioning this fact is that if one assumes an Ether inflow towards the Earth at its surface of 11.2 Km/sec. then a free electron located at the Earth's surface possesses this velocity with respect to the Ether. So when measured in this location it possesses both an electric field as well as a relativistic magnetic field, consequently a minuscule relativistic mass. In view of the fact that most physicists do not perceive or else do not accept in the inflow of space hypothesis, then they presume that the above measurement is the rest state of the electron, whereas the true rest state of the electron is when it possesses a 0 velocity with respect to the Ether.

In other words, when measured at the Earth's surface the assumed primary magnetic moment of the free electron and its assumed rest inertial mass, are in fact a partial function of its velocity with respect the inflow of space of 11.2 Km per second [Ether] accordingly not the true magnetic moment nor its true rest mass.

## **Conclusion**

Quantum Mechanics successfully predicts the outcome of particle physics and subatomic physics with extreme accuracy. In addition it is the basis for countless successful modern day inventions. For that reason, most likely it describes the true nature of the micro-world, although mathematically but not visually. What this manuscript proposes is a visual model of that exact same micro-world. Additionally this article postulates that if this new theory could be described mathematically then the same cause and effect relationships would occur, so if true it is equivalent to QM.

In other words both theories describe the exact same thing, one mathematically, whereas the other visually. Nevertheless QM is so successful that it would be very difficult to replace. Even so, the major advantage of this new theory is the fact that if one can visually perceive the cause and effect relationships, then one should also be able to conceive other ideas and inventions never before contemplated. As a concluding point, if one assumes the existence of the ether, as illustrated by this

manuscript along with my prior papers, then Relativity and Quantum Mechanics can be united.