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ATOMS: THE UNIVERSE'S WAY OF CONTROLLING ENTROPY

Branko Babić[38]

Abstract

This paper presents a critique of accepted atomic and cosmological models, demanding an intuitive oversight of plasma physics and field dynamics. It traces the historical development of atomic theory, from early philosophical ideas to scientific breakthroughs like Dalton's atomic theory, Thomson's electron discovery and the evolvement of nuclear physics, challenging the well established dogma like the Big Bang. The Author argues that plasma-generated field dynamics are the fundamental forces shaping both atomic and cosmic structures. Highlighting the evolution of atomic models, from Rutherford's planetary concept to Schrödinger's quantum mechanical framework, key contributions from Bohr, de Broglie, and Dirac are considered. It discusses the limitations of classical and quantum models, pointing out that the Schrödinger equation works for simple atoms but loses predictive power in multi electron systems. A student-proposed alternative model is introduced, suggesting electrons resonate within fixed spatial volumes above protons, forming electrostatic bonds between charges along the shortest paths. This model deliberates on the concept of neutrons being electron sharing entities that stabilize nuclei through nuclear (n-electron) exchange, offering new insights into atomic stability and nuclear bonding. The paper explores the nature of mass, proposing it as a product of field compression and energy convergence rather than an intrinsic property. Drawing on Tesla's vibrational 3, 6, 9 theories, CERN's Higgs Boson findings, it expands knowhow to embrace how gravitational vectors and Zero Point Energy fluctuations contribute to the illusion of mass. The immense energy within atoms, facilitated through nuclear processes and fusion is considered for its engineering potential. The work of Fleischmann and Pons is revisited, emphasizing bench experiments generating transmutation of elements in a beaker, as possible alternative energy research. Overall, the paper calls for a re-evaluation of foundational physics principles and encourages the integration of quantum mechanics, field theory, and plasma physics to better reflect the dynamic nature of the universe.

Key words: *Atomic Model, Hydrogen, Electron Duality, Nuclear, Transmutation, Plasma, Zero Point Limitless Energy, Tesla 3, 6, 9.*

[38] Branko R. Babić, Innovator of IRASA, Summertown, Oxford, UK, babic.branko12@gmail.com

Introduction

Exploring the evolution of scientific understanding, this work seeks to challenge current thinking and offers alternative explanations for the workings of the universe. Foundational concepts, including atomic constructs, the representation of atomic structure and the principles of nuclear physics, are critically examined. The Bohr atomic model, Schrödinger wave equations, subatomic interactions, plasma physics, the nature of the magnetic and the electrical vectors generating gravity, the effect of the Birkeland currents on galactic linkage, contesting current thinking and arguing for field dynamics being the true drivers of universal phenomena.

The 21st Century is a time of turmoil in Astrophysics and Nuclear Science in that, for too long, the scientific community has been ossified in 19th Century dogma, relating to what the Universe is about. Even in today's times, Physics continues to teach at university level physics, outdated dogma and science textbooks continues to present explanation as to what and how the fine structure of the universe is structured. The Author is presenting a discussion that challenge current dogma and will attempt to establish workable concepts to explain phenomena which were confusing when studying sciences at university and remain confusing to this day. Outstanding intellects in our time continue to struggle to fit maths and ideas into unworkable concepts and end up postulating preposterous mathematical proofs such as the "Big Bang"? Scientific concepts taught to generations of students that have boggled the minds of even the brightest in the scientific community, are challenged and alternative views put forward for consideration.

The author has refused to accept the generally accepted maths relating to the Big Bang, questioning as to where the energy to compress the entire universe into a singularity comes from and argues that the entire Universe is subject to ongoing field dynamics generated by plasma flow. Plasma, as it moves, generates electric currents and it is these plasma currents that shape and form the universe.

Everything but everything is subject to the forces exerted by the flowing plasma and when considering the dynamics of the atomic construct, scientific evidence is there to confirm that field dynamics, control the structure and form of the atomic energy constructs. Vast numbers of researchers have invested their lives in the effort to expand knowledge relating to the fine structure of the environment we live in. Understanding the fine structure is particularly difficult because researchers are working with tenuous detail that is often obscure and circumstantial, based on experiments that are interpretations rather than clear evidence that can be scientifically reproduced. The road to scientific clarity is long and difficult and the Author has published a discussion as to why the unravelling of the unknown is so difficult and so long.

Early research

Democritus 400BC, one of the great Greek Philosophers and thinkers had insights into the minutia of nature but his visions were a very long way from acceptable scientific methodology that demand confirmatory, testable and reproducible facts to be applied to the understanding of the fine structure of matter. It is an extraordinary fact that the human mind is capable of intuitive, visionary abstractions that understood without any empirical methodology. Such visions never develop to practical confirmations as there was no experimental framework to confirm the thought processes and no proof of the existence of atoms emerged for millennia.

Why these blocks in the evolvement of new concepts occur was discussed in a Thesis published by the Author and stagnation in unravelling the nature of the atomic constructs is a fine example indicating that the human mind is not capable of "Invention"[1] It was argued that known, stored information is retrieved from cortical storage and assembled in the frontal cortex to generate new concepts. No information existed on the fine detail of atoms and there was no stored information for researchers to work with so no one could progress the concept of atoms and subatomic structure.

It was not until the 1800 hundreds that information evolved in the field of chemistry for researchers to suggest that given the reactive properties of materials that there must exist very small units of matter that interact to bind together to form new compounds. John Dalton[2,3] an English chemist and Physicist extended Proust's work and converted the atomic philosophy of the Greeks into a scientific theory between 1803 and 1808, the modern age of discoveries of fine particulates. His book was the first application of atomic theory to chemistry. Dolton proposed that all matter was made from spherical particles (like golf balls), that were indivisible, and were of uniform shape and density. The definition that any given element was made of identical atoms of same size and weight and that atoms, reacted with other atoms, to produce compounds was revolutionary and innovative.

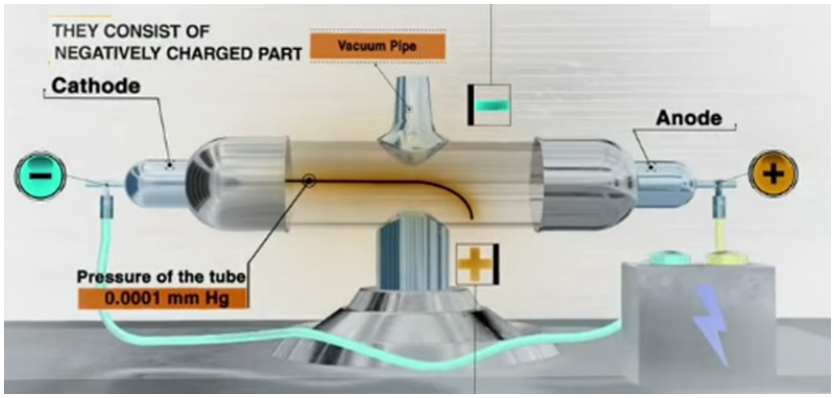


Figure 1. Discovery of the Electron.

Once this information became available many scientists added to the discovery to further expand the available information relating to this corpuscle of matter and many researchers contributed to the understanding of the nature of these units of mass. A German Physicist working with high energy electric current conducted the first recorded experiments with the "Cathode Ray Tube" to show that current flowed from the positive to the negative terminals and his research in 1870, was further developed by W Crooks and E Goldstein in 1876. The breakthrough came when J.J. Thompson[4] in 1897 added positive and negative terminals across the flow stream and shower that it was made up of negatively charged particles that were attracted towards the positive plate, Fig 1 This was the first scientific effort to unravel the internal structure of The Plum Pudding Model and the nature of the electron was identified as a negatively charged sub atomic component of the corpuscles. Thereafter, a cascade of research followed. According to his hypothesis, an atom consists of positive and negative charges present in equal amounts so that the atom is electrically neutral. He proposed that the atom was a sphere with charges embedded within it and he proposed the "Plum Pudding Atomic Model" in 1904. The proposal that atoms have a substructure, was a pivotal step in the understanding of

atoms and allowed him to formulate details which stated that an atom was a sphere, with an equal number of positively and negatively charged particles embedded within the volume, giving an electrically neutral, stable construct. Thompson is credited with identifying, in a scientifically reproducible experiment, the existence of negatively charged electrons and identifying the sub-atomic nature of atoms. These charged properties were tested in his experiments and were scientifically reproducible and measurable. The quantification of the electric charge carried by electrons flowing directionally from the negative electrode to the positive electrode opened up the study and development of electronic devices, including, semiconductors, transistors, integrated circuitry, TV and a vast number of other applications that are extensively used in modern technology. By applying magnetic fields to the flowing stream of electrons Thompson was able to quantify the charge to mass ratio and that finding, opened up the very important study of Mass Spectroscopy. This science facilitates measurement of atomic masses which led to the identification of isotopes and that understanding, facilitated extensive applications in the analyse of chemical compounds. The discovery demonstrated that atoms were divisible into sub atomic entities and that finding, was fundamental in the research on the atomic construct. The identification of atomic nuclei opened up the study of Nuclear Physics and understanding of the enormous quantities of energy trapped within atoms but applications are extensive and used in for example, modern medical imaging methodology.

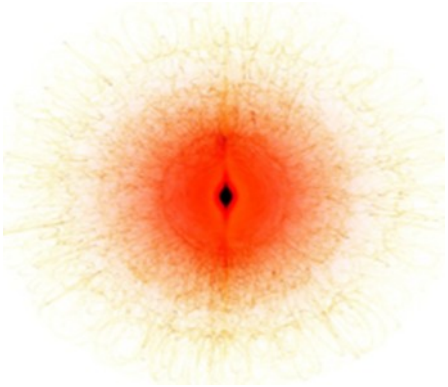


Figure 2. Rutherford's 3D model of electrons

Figure 3. Bohr Atomic Model

Thomson's cathode ray experiments were central in opening up the study of the atom and the properties of its subatomic components have facilitated the development particle accelerators and the field of electromagnetism generated by flowing charge. Flowing charged particles are plasma particles, which in modern astrophysics relates to the structure shape and form and properties of the entire universe. It is the experimental work of Thompson that has allowed scientific understanding of subatomic particles and how they relate to quantum physics and chemical reactions. Chemistry is the science of how electrons in their quantized states interact with other electrons of different atoms.
Still evolving, the relationship of the charges in the atom were considered to be embedded and stationary within the volume of the atom but these early experiments challenged the earlier notion that atoms were indivisible and revolutionized atomic theory.
In an outpouring of innovation relating to atomic structure, Ernest Rutherford promptly added to the pivotal discoveries made by Thomsons by publishing his research on

bombarding a very thin sheet of gold with electrons and in 1911 published his Planetary Model of the Atom[5]. This model proposed a tiny, central core containing most of the mass of the atom that was positively charged and very small in comparison to the whole atomic volume. The nucleus, situated at the centre of the Planetary Model, had electrons positioned high above it. At this stage of his research, he did not propose any given arrangement of the electrons above the nucleus but his work lay the foundation for modern Atomic Physics.

The frenzy of research relating to atomic structure attracted other physicist to publish their research and Neil Bohr in 1913, a Danish physicist, built on the work of Joseph Lamore, Jean Perrin, Irving Langmuir[6,7] and Rutherford, to propose the Electron Orbital construct whereby the electrons of the atom circumvented the positively charged atomic nucleus in a manner that resembled the movement of the planets around the sun[8,9,10,11]. It is this model of the atomic structure that continues to be taught in schools and universities but this model causes huge problems to the curious and investigative mind. The impossibility of the kinetics of this arrangement was difficult to grasp during university lectures. Bohr received the 1922 Nobel Prize for this hypothesis and it remains the model of atomic structure used currently.

The Bohr's model of the atom, proposes that energy levels of electrons are discrete and that electrons revolve in stable orbits around the atomic nucleus. Electrons can jump from one energy level (or orbit) to another. Although the Bohr model has been advanced by further research, its basic principles are valid. The theory of electrons travelling around the atomic nucleus in quantised "stationary states" stabilise the atom, but it wasn't until his 1921 paper that he showed the chemical properties of each element were largely determined by the number of electrons in the outer orbits of its atoms. He introduced the idea that an electron could drop from a higher-energy orbit to a lower one and in the process, emit a quantum of discrete energy[4]. He conceived the terms of contradictory properties that could be separately analysed as waves and particulates a concept that was expanded by other researchers[12]. This was the basis of the old quantum theory. The Bohr model of the hydrogen atom. A negatively charged electron, confined to an atomic orbital, Fig 4 that was dependant on the environmental energy fluctuations, orbits a small, positively charged nucleus. The electron can gain energy to jump to a higher orbital or loses energy to fall to a lower one. An electron jump between orbits is accompanied by emission or absorption of a specific quantum of electromagnetic radiation.

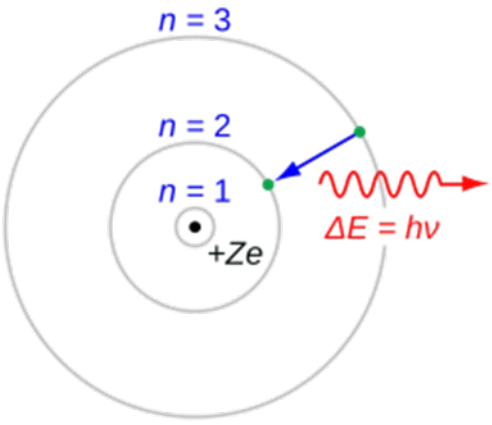


Figure 4. Electrons jumping from a higher orbital to a lower orbital release

a specific quantum of energy that is observed as coloured light

Modern spectral line analyses of energy in the quantized models of the Bohr atom are the bases that explains how by moving from higher levels above the atomic nucleus, electromagnetic radiation is released when an electron falls to a lower potential energy state above the nucleus. During these jumps, the electron emits a specific amount of electromagnetic radiation, corresponding to the energy difference between the two levels. This idea was pivotal in explaining phenomena like the spectral lines of hydrogen, observed when light emitted or absorbed by hydrogen atoms was analysed and provides an essential tool for analysing the composition of distant planetary bodies.

Although the Bohr model has been superseded by more comprehensive quantum mechanical models, it formed a useful working tool in understanding atomic structure and remains an essential stepping stone in understanding atomic theory, especially for its introduction of quantized energy levels. The model is the foundation of modern quantum mechanics and provides a more accurate and comprehensive description of atomic behaviour than earlier models. It explains phenomena like chemical bonding, electron configurations, and the structure of the periodic table.

The next major theoretical advancement came from Erwin Schrödinger's atomic model, a mathematical expression[13] describing motion of small particles and how they are governed by external factors. His equations for electrons define their energy and position and is known as the Quantum Mechanical Model of the Atom, to revolutionized our understanding of atomic structure by integrating evidence from wave interference experiments. He introduced the concept of electron behaving like waves and his formulas specified electrons in terms of probability and wave function, to identify their positions. This key concept, related to the findings that when electrons were fired towards a tiny slit the post obstruction energy pattern behaves like the energy pattern seen in wave physics ie ripples are observed of high and low energy bands on the trailing side of the perforated obstruction. The finding was subjected to two slits and showed high and low energy interference, identical to the interference patters seen when pure electromagnetic wave energy was fired at the same slits. This experimental finding encouraged Schrodinger to build on de Broglie's research in seeing electrons in terms of wave energy and he specified values to the electron which quantified it in terms of a 3-dimensional standing wave.

Fig 5 shows mass and wave characteristics manifest by electrons, A is the central volume of electron, B is the field all charged particles generate and C is the double slit experimental obstruction. Fig 6 shows de Broglie's work showing that matter demonstrates solid and wave characteristics.

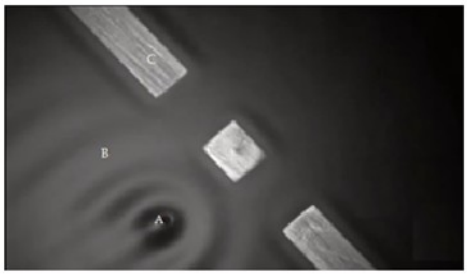


Figure 5. Double slit experiment

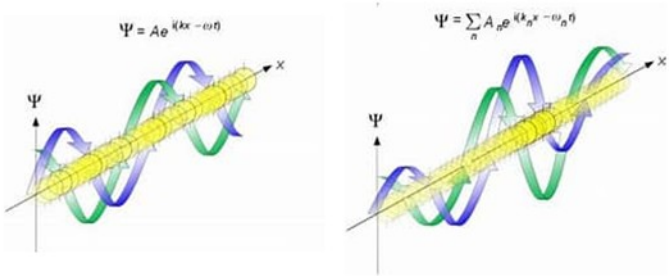


Figure 6. Wave particulate duality by de Brogli

The difficulty for researchers at the time was that experimental results showed electron to have mass. When the single slit experiments was performed, electrons behaved as solid object travelling in straight line, impacting on the target to imprint patterns identical to solid particulates of matter in classical physics but post the slit obstruction wave like patters were observed. These wave characteristics became more apparent as two 1mm slits were bombarded with electron streams to give pronounced wave patterns on the rear aspect of the slit obstruction. Difficult to explain experimental findings[14]. This duality of electrons manifesting particle and wave properties was initially described in 1924 by Louise de-Broglie[15].

Schrödinger developed a mathematical equation, now known as the Schrödinger Wave Equation, to describe the behaviour of electrons in an atom in wave form. This equation calculates the probability distribution of an electron's position, leading to the concept of electron clouds. The wave function is a differential calculus expression which identifies the electron as an energy value positioned in an orbital forming a probability map, giving the position of the electron in space/time above the positively charged nucleus. Schrödinger's model introduced quantum numbers to describe the properties of electrons, such as their energy levels, shapes of orbitals, and orientations in space. But science is not taking into account the obvious parameter, plasma. Plasma, induces fields as it moves through space and so does the negatively charged electron. In the above slit experiment Fig 5 a clear field induction region is captured in the image wherein the solid “dense” volume of the electron is seen at “A” and it, generates the plasma field “B”. The field passes through the slit to generate wave motion in the post slit trailing space. The wave dynamic duality of electrons is generated by the plasma filed!

Hydrogen atom and the Schrodinger equation

The hydrogen atom with its one electron and one proton formed the ideal model for the refinement of the mathematics related to explain possibility of the electron behaving as a particle and a wave function. Louise de Broglie described how a particle might move in a wave like motion. It was de Broglie, Paul Dirac[16] et al. who refined mathematical formulations that described wave motion and predicted atomic bonds. These linear differential equations, provided a means for calculating quantum mechanical behaviours of systems in wave motion.

In 1926 Schrodinger[17] published a Paper that presented methodology to describe how to determine the properties of a two body system, using 3 dimensional wave equation to specify the properties of the negatively charged electron orbiting a common centre of mass. The equation provides a way to calculate the wave function for a system and how it changes dynamically with time. Basically, the Equation describes a collection of statistical information about a given system linking the state of the system at one moment with how it relates to the next. The complexity of the wave function eluded Schrodinger and he never actually defined the wave function but his equation accurately determined the spectral lines for hydrogen. The Schrodinger differential equation describing the quantum state of the electron very well for the Hydrogen atom but fails entirely for complex large atoms. And it is the dynamics of larger atoms where the Schrodinger Equation fails and not only because of the many competing factors acting on electrons as they resonate about the central positive mass. In simple atoms the electron moves about unimpeded by additional positive charges of the central mass but in large atoms there are many positive charges all acting on the electron environment. Electrons are impeded or

accelerated by external fields, acted on by the many positive charges in the nucleus and the dynamics of other electron generated fields and by other external factors. All these forces disrupt the 3 dimensional stable environment of Hydrogen so that the parameters used by Schrodinger are challenged to make his mathematical description invalid in large atoms.

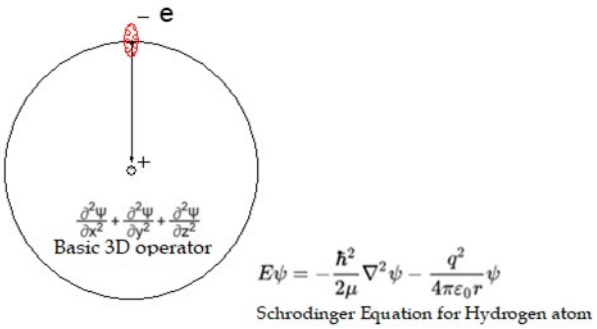


Figure 7. Electron moves in 3 dimensions:
Hydrogen. (H) Atomic Number 1 Atomic Mass 1

The early models of atomic structure have made their contribution and at a time when science from the Large Hadron Collider technology is becoming available science must make an effort to refine details relating to the relationship between the negatively charged electron and the positively charged positron of the proton. As a student of Chemistry, the Author had great difficulty grasping the dynamics of atomic structures and put forward alternative models that were intuitively easier to understand. Basically, a student project in effect proposed that the electrons do not in practice, orbit the nucleus but are rather fixed in a space volume above the proton, which is positioned directly below the electron at right angles to the volume occupied by the electron. The electrostatic bond formed between the two charged particles is established along the shortest distance between the electron and the proton. What this model proposed was an arrangement whereby the electrostatic bond formed was fixed at a distance that was optimum for the given energy state in which the atom finds itself. The potential energy of the electron being fixed within resonance limits related to the principal quantum numbers. The electron resonates within a given volume above the proton and the potential energy varies depending on the energy in the environment. At absolute temperatures the resonance volume of the electron would be minimal and the volume occupied by the electron would be smaller than at room temperature.

Atomic fields

Atoms are made up of charged particles that are held together because of the electromagnetic field differences. Electrons are negatively charged and protons are positively charged positron. When a proton interacts with an electron the negative and positive components cancel each other out to create an electrically neutral particle called a neutron. All charged particles manifest electromagnetic fields which extend into space to interact with other fields and in practice, play a crucial role in the how atoms interact to form chemical bonds. It is these fields that are present everywhere that control how everything behaves and controls the behaviour of the smallest to the largest structures in the Universe. Fields control the nature, distribution, shape and form of atoms, molecules, planets, solar systems, galaxies, the Universe. According to the laws of physics, the

fundamental building blocks of Nature are discrete parcels of mass energy but what holds the universe together are the fields that permeate everything. The ripples in the generated fields give rise to electromagnetic waves. Field energy froths and boils, a competing soup of particles and anti-particles, constantly being created and destroyed, mass being generated out of the melee and disappearing again. Scientists have calculated the amount of energy these fields generate and the amount of energy in this chaos is incomprehensible. The Quantum Field Theory estimates the energy in every cubic metre of space to be about 10^{3} joules/m^3! Fields control everything and in atomic structure the analyses of how the electric field generated by charge and the magnetic fields generated by moving charged particles generate the electromagnetic properties of matter.

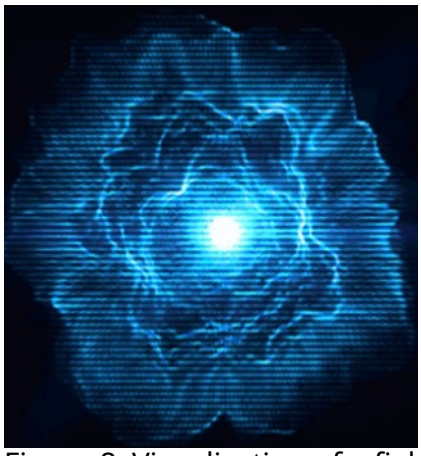


Figure 8. Visualisation of a field about a charge

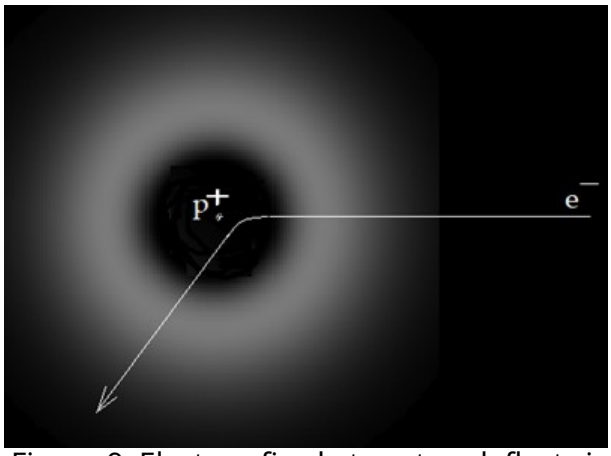


Figure 9. Electron fired at proton deflects ie is repelled, as it approaches the positive nuclear charge.

University teaching curricula delved into extensive orbital theory of kinetic momentum and charge attraction it remained very difficult to understand why the Coulombic force of the electron and proton do not attract each other to annihilate. The teachings were confused as with so many poorly understood phenomena wherein mathematicians contort their maths to make do, rather than look for actual causation. And so, for many years the concept of why an electron did not collapse into the nucleus of the atom remained a mystery. Very confusing experimental information frustrated understanding of actuality as experiments where electrons were fired directly at the proton, always resulted in the electron wearing away as it approached the positively charged proton? the electron towards the proton that the electron actually forced its way into the nuclear envelope and there, neutralised the positive charge of the proton to create a neutron. This finding caused and continues to cause confusion in science and to date no explanations are offered that explain this non intuitive phenomenon. But in Chemistry, the concept of irreconcilable construct is well understood as many examples of molecular stereochemistry that are mirror image structural arrangement, are known. Mirror image molecules are identical in their molecular formulation but are non-superimposable, ie the two molecular constructs cannot be superimposed because mirror image constructs have molecular groups that are 180 degrees out of phase. To give a simplistic example, our hands are identical in every respect but are mirror image constructs that cannot be superimposed.

When considering electromagnetic radiation, a photon for example, is made up of an electric and a magnetic vector. When these energy vectors are 180 deg. out of phase the

electric and magnetic vectors become mirror image non superimposable structures, that are identical in their properties but cannot be superimposed. From Fig 10 the electric vector is represented by the red displacement and the magnetic vector by the green displacement. The perturbation can form a photon of energy such a light. When the two perturbations are mirror image constructs the two entities become non superimposable ie no matter what is done to the two entities they cannot combine their energies to give a single and inseparable unit of energy.

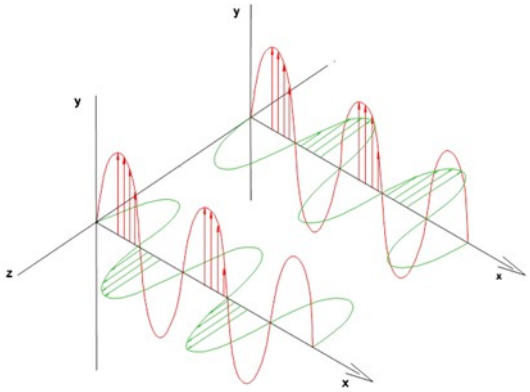


Figure 10. Mirror image of electric and magnetic vectors in a photon

The Author argued that it was this mirror image construct that forces the accelerated electron to veer off as it approached the positron. Properties associated with negatively charged entities, produced fields that give rise to spin factors that generate properties unique to the negative charge. The positively charged entity generate field factors that are organised in exactly the same space and form but the structure has a mirror image arrangement to the negatively charged entity and generate spin characteristics that are 180 deg. out of phase. These two constructs are irreconcilably different, under all conditions in the universe and that is the reason why positively charged and negatively charges entities do not destroy each other and the universe does not annihilate itself. The Author's argument is reinforced by laboratory experimental evidence of field repulsion as the matter antimatter reactions occur. Enormous amounts of energy are given off in these reactions but the remaining photons repel each other to stream off in opposite directions after the reaction.

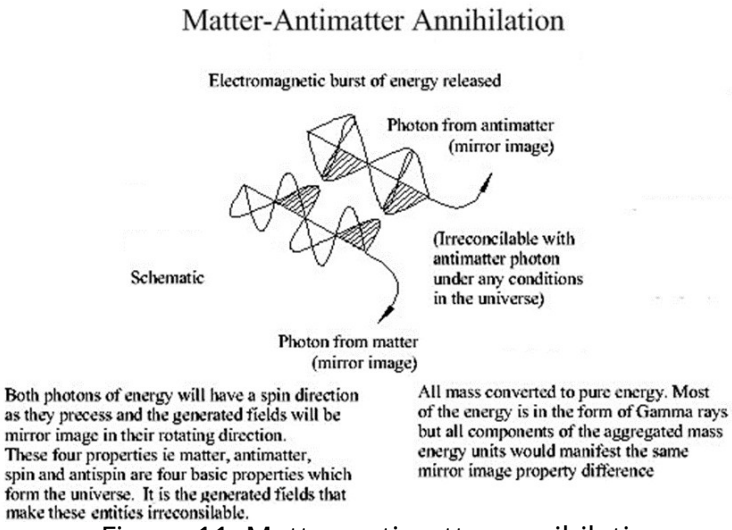


Figure 11. Matter antimatter annihilation

Rethinking atomic structure

Excitedly awaiting experimental results from CERN, the LHC (Large Hadron Collider) programme, research is again returning to the fundamental models of atomic structure. The actual arrangement of electrons, protons, neutrons and other particulates that are yet to be discovered making up an atom, remains open to speculation and the Author is putting forward for discussion additional possibilities. Evidence that will allow a definitive atomic construct to be put forward is evolving but schools, universities and teaching institutions still continue to teach atomic structure in terms of electrons orbiting the nucleus in a planetary model even though it is flawed. Experimental evidence is awaited that will refute or consolidate the concepts being put forward here for discussion. The existing visualisation of the relationship between the electron and the nucleus needs to be reconsidered in as much that the current model of the atom, in which electrons are said to moves about the nucleus cannot be correct. The Bohr model of atomic structure has served science well but modern experimental and analytical methodology provides information that suggests that the construct needs remodelling. It was always difficult to reconcile the dynamic energy fluctuations with positions of electrons in the space above the nucleus. Electrons move at about the speed of light as they circumnavigate the nucleus and are subject to a vast number of powerful, fluctuating fields that act on the charged particle.

The Hydrogen atom electron is free to move about the periphery of the volume above the proton. The potential energy of the electron varies within narrow parameters, specified by orbital theory and stays within the “Principal Quantum Number” potential energy range. The electron has a relative atomic mass of 0.00054858amu (atomic mass units) and a charge of (-)1.

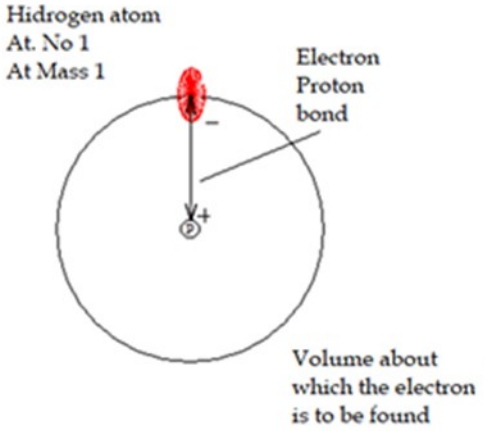


Figure 12. Hydrogen atom

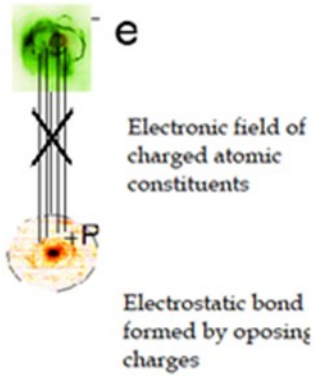


Figure 13. Electronic filed

The basic arrangement for the hydrogen atom is specified in Fig 12. The Author argues that the electron of this element occupies a volume marked in red, directly above the nucleus and at 90 to the proton. It is free to move in all three dimensions about the proton. It remains bonded to the proton as it is stressed by the prevailing fields in its environment. Fields acting on the electron compress and stretch the bond between the electron and the proton and these forces reflect on how the electron moves about in its active volume, being restricted to the allowed energy constraints. The stresses and strains imposed on the electron field, reflect on the constraints embedded in the Schrodinger Wave Equation. There is never unimpeded 3 dimensional flow of this charged particle about the nucleus. The Schrodinger Equation does not allow for all the extra parameters that influence the flow of the charged particle and the equation works well for the hydrogen atom but fails completely to account for the behaviour of electrons in field stressed electrons in complex atoms.

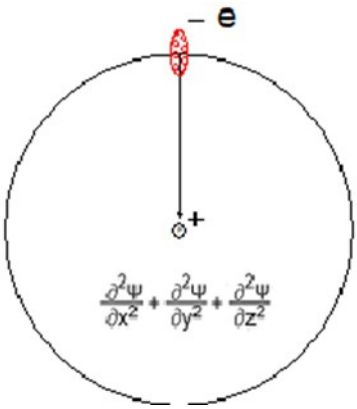


Figure 14. Positive charge

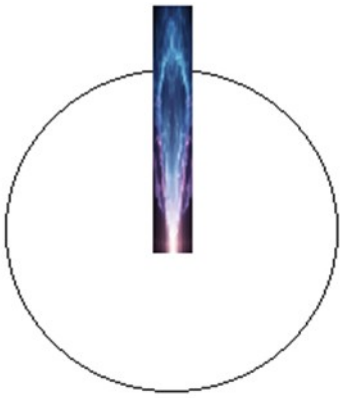


Figure 15. Field forces

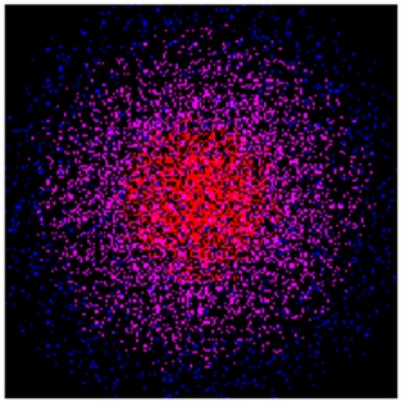


Figure 16. The position of electron

Fig 14 is a graphic of the positive charge of the hydrogen atom showing the position of the electron above the positive nucleus, far away from the proton. In this drawing the electron moves about in 3 dimensions responding to the energy of all fields in its environment so that as the electron is acted on by external fields it responds to reduce its energy. The electron can move in the x, y and z directions specified by the Schrodinger Equation but it can also slow down and accelerate and move towards and away from the

proton all of which vary its energy terms and therefore the wave function characteristics. The Schrodinger Equation only allows for some of the behaviour an electron manifests and when there are multiple forces acting on electrons in space, such as in large atoms, the Schrodinger Equation fails to account for electron characteristics. Fig 15 attempts to demonstrate the field forces acting between the central proton and the electron and Fig 16 Shows a photograph of the most recent image from the LHC, detecting the position of the electron about the space of the proton in a hydrogen atom. Note that the probability of the electron occupying any given red dot at any given time is debated by the Uncertainty Principle and is contained within the Principal Quantum potential n=1 energy level.

[21]

[22]

For example, bonded electrons of large nuclei are stressed by many fields in the atom's environment and in the Bohr Model, any given electron bonded to a proton traveling about in space would need to be constantly breaking and reforming bonds between various protons in the nucleus. In Fig 17 an example is given wherein an electron is bonded to a proton to reflect the Bohr configuration within the principal quantum number constraints but as the electron continues in its orbit it moves to a position in which the bond would be stretched and broken as the electron reached a position "out of sight" of the bonding proton. Any variance in the bond length reflects on the energy of the electron and positron and that would have an effect on the Schrodinger Equation parameters. As the bond was broken, the electron's kinetic momentum of the trajectory would eject the electron out of the atom. Clearly, this does not happen so the mechanism by which electrons stay in the principal quantum number volumes is not explained by the Bohr Model.

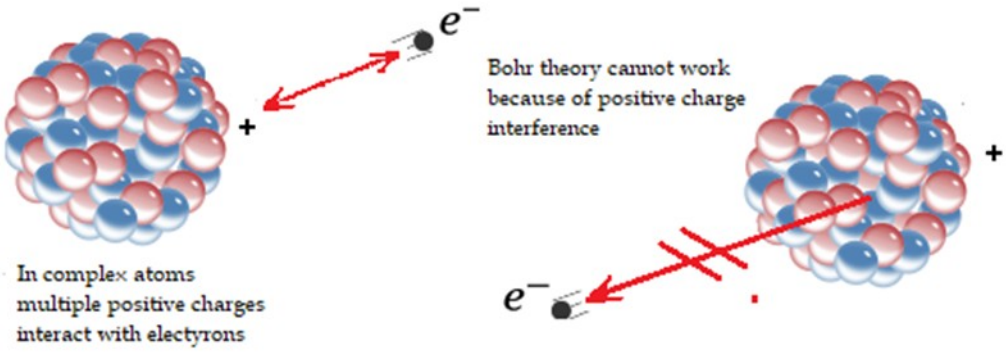


Figure 17. Bohr model

For example, bonded electrons of large nuclei are stressed by many fields in the atom's environment and in the Bohr Model, any given electron bonded to a proton traveling about in space would need to be constantly breaking and reforming bonds between various protons in the nucleus. In Fig 17 an example is given wherein an electron is bonded to a proton to reflect the Bohr configuration within the principal quantum number constraints but as the electron continues in its orbit it moves to a position in which the bond would be stretched and broken as the electron reached a position "out of sight" of the bonding proton. Any variance in the bond length reflects on the energy of the electron and positron and that would have an effect on the Schrodinger Equation parameters. As the bond was broken, the electron's kinetic momentum of the trajectory would eject the electron out of the atom. Clearly, this does not happen so the mechanism by which electrons stay in the principal quantum number volumes is not explained by the Bohr Model.

An additional consideration of how electrons remain in their orbits needs explanation. The rapid resonance of the nuclear electron (n-electron), resonating between the neutron and the adjacent proton, requires the electron to break its bond with one nucleon to reform it with another, the energy field dynamics reflecting on all energy fields in the environment and in large atoms this energy fluctuation has a cumulative effect on the atom. Electrons moving about at the speed of light according to the Bohr Model, would be subject to vast fluctuations of field variables that would make the specified wave motion characteristics in the Schrodinger Equation unworkable. There would be a great deal of energy expended in the plasticity of the nucleus as the energy requirements varied from one side of the nucleus to the other. In complex large atomic constructs, the frictional factors created by the constant reconstruction of bonds between the protons and electrons would require a great deal of rearrangement and create nuclear instability.

Atoms energy depositories

A student project in effect proposed that the electrons do not in practice, orbit the nucleus as envisioned by Bohr but rather, they are confined to localised volumes directly above the proton. The potential energy of the electron is fixed within resonance limits related to the principal quantised space above the proton, responding to energy variables of the environment. At 273 Kelvin, the resonating volume of the electron would be minimal and the volume occupied by the electron would be smaller than at room temperature but the electron would continue its resonance characteristic. Research at these temperatures is awaited as a means of providing a better definition of the electron space above the nucleus. In hydrogen, the simplest atom, one electron interacts with one proton, forming a thermodynamically stable energy system containing a given quantity of energy. As atoms get larger, more protons are added, and neutrons are needed to keep the nucleus stable. A neutron is described here as a proton that contains an “n-electron,” which it shares with nearby protons. This unstable neutron arrangement shares the n-electron to balance charges and stabilize the nucleus. The nucleus is stabilised by the resonating n-electron to form an energy depository relating to the number of protons and neutrons in the nucleus, the neutron’s constant exchange of this n-electron creates a “chemical covalent bond” between nucleons. Electrons and protons, both charged particles, naturally spread out as far as possible from each other within their energy levels. This spacing creates constant movement and energy shifts inside atoms. In helium, the next member of the Periodic Table[23,24,25] Group 1 Period 18, the two electrons sit at opposite ends of the atom in the lowest energy level. Similarly, positively charged particles like positrons also repel each other and spread out. Same charge particles occupy positions in space[26] that are as far away as possible from each other the assembly being responsive to external energy fluctuations. Electrons in the Helium atom occupy a position in space that is at the opposite ends of the atom in the n=1 Principal Quantum Number[27] potential energy level. For the same reasons the positron charge would be forced as far away as possible from the other positively charged particle in the nucleus.

As the number protons and neutrons increases the amount of energy contained within[28,29] nuclei is increased, as the repulsive forces between charged particles increase. The third member of the Periodic Table Lithium, with 3 protons and 4 neutrons, classified in Group 2 Period 1, has a total amount of energy of 6574.60 Mev. Its three electrons are spaced evenly around the nucleus[30], minimizing repulsion and maximizing stability. Compressing charged particles into a small space stores energy in a stable form. Charged

particles contained in a given volume always assume a position in space that are at a maximum distance away from adjacent charged particles and can be determined by sophisticated mathematical modelling Fig 20 Note the equal distances r1 to r3 from the nucleus and the equal distances between the electrons $r_{1,1}$ to $r_{1,3}$. Compressing energetic particles within a given volume stores energy in a thermodynamically stable envelope.

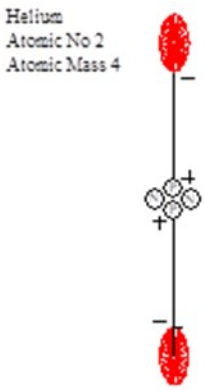


Figure 18. Position of electrons

Figure 19. Generated fields

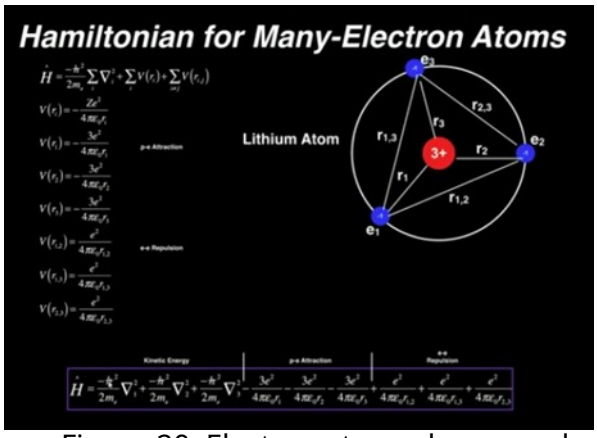


Figure 20. Electrons to nucleus equal distances

In beryllium, 5 neutrons are needed for stability. The n-electron inside each neutron neutralize the positive charge of the proton as it moves from one baryon to the other. This electron is shared between baryons (protons and neutrons), reducing repulsion and forming a nuclear bond that in chemistry terms forms a “covalent bond”. Neutrons constantly switch between being protons and neutrons through this n-electron exchange, mirroring the way atoms form chemical bonds. This sharing of electrons forms the foundation of chemical bonding in chemistry and it is being proposed here that the sharing of the n-electron is in fact “nuclear chemistry” at work. There would seem to be a continuity of physical parameters between Atomic Physics and Nuclear Chemistry?

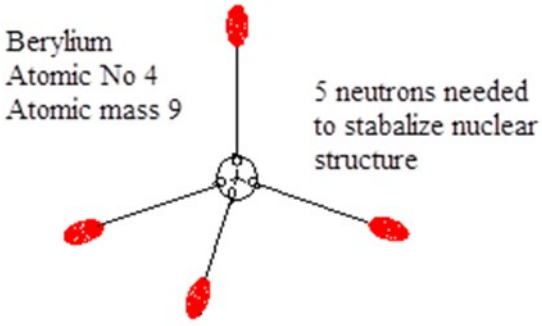


Figure 21. Beryllium neutrons

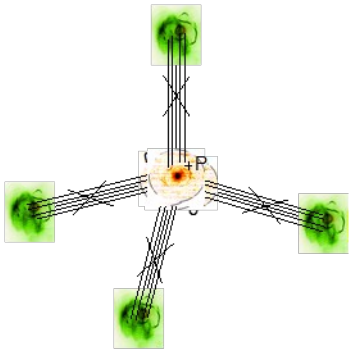


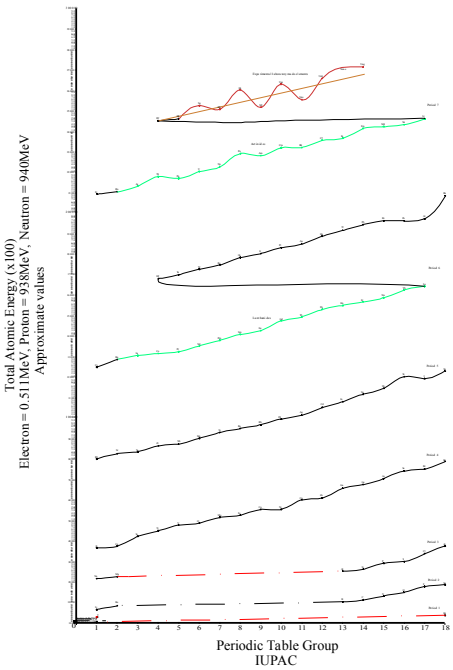
Figure 22. Movement of n-electrons

The arrangement of protons and neutrons in the nucleus is guided by the dynamic movement of the n-electrons. This dynamic maintains the lowest energy state, storing large amounts of energy inside the atom. Beryllium’s atomic mass is 9.012182 amu.
Electrons and protons repel each other, spreading out and creating a large energy reservoir. Each proton is linked to an electron above the nucleus by an electrostatic bond.

When the electron moves, it pulls the proton with it, shifting the atom's structure. This mechanism explains how electrons move in three dimensions around hydrogen. In larger atoms[31], the nucleus has a defined shape, with protons and neutrons arranged in fixed positions.

The Periodic Table[31,32] is organized by increasing numbers of protons. To manage the intense repulsion between these charged particles, neutrons with n-electrons form bonds with protons to stabilize the nucleus. Each baryon (proton or neutron) has a specific mass and energy value. For example: Electron: 0.00054858 amu → 0.511 MeV, Proton: 1.0078 amu, Neutron: 1.0087 amu

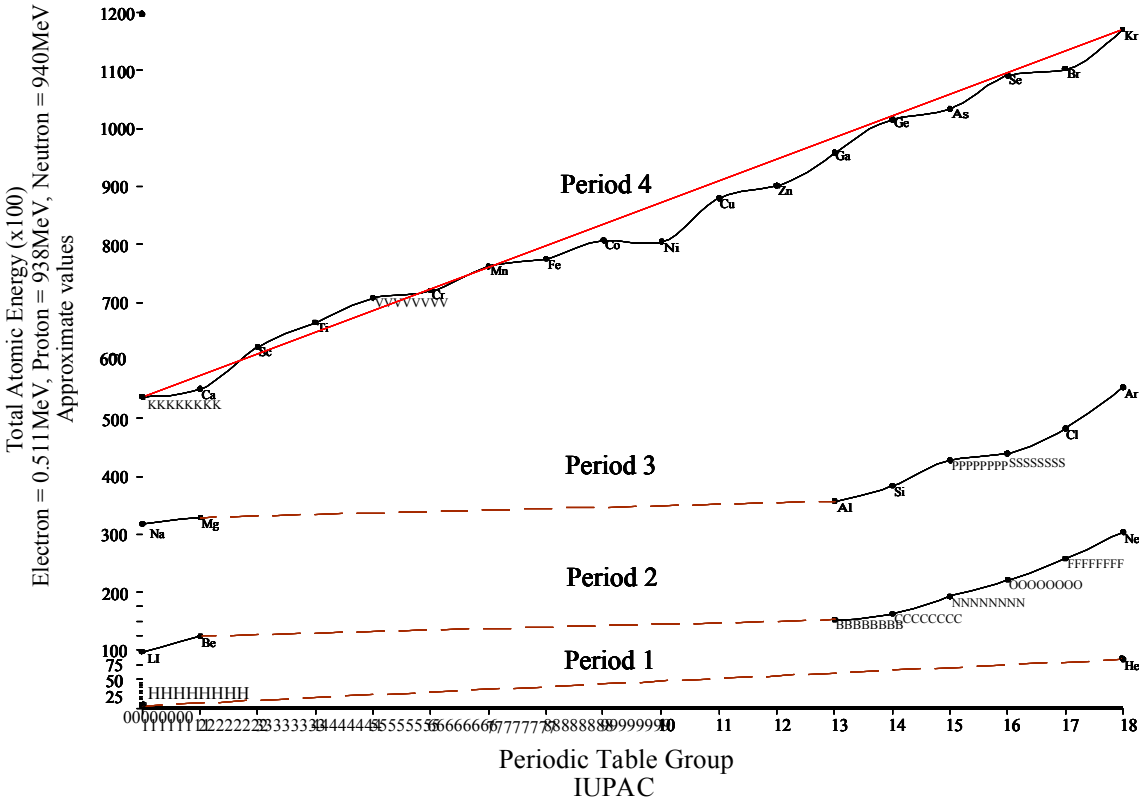
Using Einstein's equation $E=mc^2$, we can convert atomic mass into energy. But, this equation would seem to be simplistic for it does not take into account the energy factors associated with fields, binding energy, ZPE Quantum Field Fluctuations in Quark space and the like. As an example, only, a Proton in a Hydrogen atom, cannot have the same energy as a proton in the nucleus of a large atom like Uranium. The Quantum Field ZPE fluctuations acting on Quarks, have to make each nucleon more energetic in large atoms. The equation shows how atoms act as energy depositories and as an examples Hydrogen holds: 938.511 MeV, Carbon: 11,271 MeV, Silicon: 26,299 MeV, Calcium: 37,570 MeV, Copper: 60,117 MeV, Silver: 101,450 MeV, Gold: 185,068 MeV, Uranium: 223,583 MeV. Massive quantities of energy are stored within subatomic particles and humanity needs to develop engineering methods to reverse nuclear energy containment so that it can be released to fuel useful work.



Graph 1. Period table in terms of energy

By using conversion values the entire Periodic Table can be presented in terms of energy stored within atoms and as a further example of calculated energy values, H = 938.511MeV, C = 11271MeV, Si = 26299MeV, Ca = 37570MeV, Cu = 60117MeV, Ag = 101450MeV, Au=185068MeV, U = 223583MEV..... See Graph 1, Tabulating energy values for each atom gives a graph in energy terms, which extend into hundreds of thousands of MeV for the larger atoms. As an example only and because the extent of

Graph 1 the scale is so large, an expanded graph, Graph 2, shows only the smallest atoms in the Periodic Table are sown. In this graph, the scale of the quantity of energy contained in atoms is more clearly seen.



Graph 2. Smallest atoms in terms of energy

The mechanism by which energy is compacted into atoms in the vastness of the universe, is one of brute force but trying to make atoms here on earth requires complex infrastructure but it has been achieved in fusion experiments. Fusion is one method of releasing atomic energy. For example, combining hydrogen isotopes into helium produces 17.2 MeV of energy:

$$^{2}\mathbf{D}_{1} + {}^{3}\mathbf{T}_{1} \rightarrow {}^{4}\mathbf{He}_{2} + {}^{1}\mathbf{n}_{0} + \mathbf{17.2}\text{MeV}\uparrow$$

Fusion requires huge energy input. At Harwell in the UK, fusion experiments need more power than the local grid can supply and series of extra generators are employed to provide power during fusion experiments.

Discussion

A critical reassessment of modern physics arguses that its stagnation stems from an overreliance on outdated 19th-century models. Central to this critique is the rejection of the Big Bang theory, which the Author views as conceptually flawed due to its assumption

that all universal energy could be compressed into a singularity. Instead, the paper proposes that plasma flows and the electromagnetic fields they generate are the true architects of cosmic structure, offering a more dynamic and scalable explanation for the universe's complexity.

A historical overview of atomic theory, tracing its evolution from Democritus's philosophical atomism to Dalton's scientific formalization highlights J.J. Thomson's cathode ray experiments, which identified the electron and laid the foundation for quantum chemistry and modern electronics. These discoveries are framed as pivotal in understanding subatomic behaviour and its implications for intuitive models of reality.

The Author emphasizes the importance of field dynamics particularly those generated by plasma, in shaping both atomic and cosmic structures. This view aligns with emerging astrophysical models that recognize the role of Birkeland currents and plasma interactions in galactic formation. The paper reviews current methodologies in atomic and nuclear physics, noting that much experimental evidence is interpretive rather than reproducible. It calls for a shift from ossified interpretations of Rutherford's 1911 Planetary Model and Bohr's 1913 quantized orbit models to models that prioritize dynamic field interactions. While Bohr's model explained spectral lines and introduced the concept of energy quanta, it struggled with multi-electron systems and kinetic plausibility. Schrödinger's wave equation addressed these limitations by treating electrons as probabilistic wave functions, presented earlier by de Broglie, by introducing quantum numbers. Experimental findings like the double-slit experiment supporting de Broglie's matter-wave duality are argued to be manifestations of field dynamics caused by plasma-induced energy effects on the adjacent energy densities of the Quantum Vacuumed Energy concentrations.

However, Schrödinger's equation falters with larger atoms due to the multiple field interactions of many electron-electron interactions, Coulomb repulsion, and quantum entanglementmaking exact solutions impractical. In complex atoms, electrons are influenced by both the nucleus and dynamic fields generated by other electrons, disrupting the stable environment assumed in simpler models.

A student-proposed model challenges traditional orbital concepts by suggesting that electrons are fixed in quantized volumes directly above protons. These volumes are defined by resonance limits tied to quantum numbers and environmental energy conditions. At higher temperatures, the resonance volume increases, indicating a thermodynamic relationship between temperature and electron distribution. The model also introduces "n-electrons" within neutrons, which stabilize the nucleus by forming covalent-like bonds between baryons. The paper further challenges traditional particle physics by proposing that mass is a field compression phenomenon and does not actually exist. Remarkable photographic evidence, captured during laser scatter experiments, show a third perturbations in electromagnetic corpuscles indicating that Gravity, may be a Resultant Force generated by the Electric and Magnetic field densities. T he paper laments the power of institutional control of science, seeing these financial interests as interference in scientific research implementation from tapping into the limitless ZPE to Cold Fusion as a means of providing humanity with unlimited energy.

Conclusion

This paper calls for a radical rethinking of atomic and cosmic science, challenging long-held models and advocating for a paradigm shift toward field dynamics and plasma physics. It critiques the Big Bang, Dark Matter, Black Hole et al theories and highlights

plasma-generated forces as a more empirically grounded alternative. By tracing the evolution of atomic theory from classical models to quantum mechanics the author points out limitations of established dogma in research arguing that financial interests control the evolvement of science.

Alternative models emphasize fixed electron resonance volumes and electrostatic bonding, offering a more intuitive depiction of atomic structure. It introduces the concept of nuclear electron exchange between baryons, bridging atomic physics and nuclear chemistry. Traditional orbital theories are challenged and a more dynamic understanding of atomic interactions are considered.

Mass is reinterpreted not as a physical property but a result of field compression and vibratory energy convergence that is forced into finite volumes in high energy environments of the cosmos. Tesla's 3,6,9 Ratio is presented as a focus for understanding energy reinforcement and gravitational effects, while the Higgs Boson is reframed as a manifestation of concentrated energy flux. Quantum field fluctuations and zero-point energy interactions imply that atoms are vast reservoirs of untapped energy, opening new possibilities for energy harvesting and sub-nuclear manipulation.

The paper revisits cold fusion, inspired by the work of Fleischmann and Pons. It argues that low-energy electrochemical nuclear reactions, could revolutionize global energy systems. The conclusion stresses the importance of open-minded scientific inquiry, free from institutional or financial constraints, to fully explore the transformative potential of atomic energy and redefine the foundations of matter.

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