

Applied Micronuclear Physics

by David A. Cintron

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MICRONUCLEAR PHYSICS

DEFINITION: MICRONUCLEAR PHYSICS

A NEW PRESENTATION OF QUANTUM WAVE MECHANICS
TOWARDS IMPROVED EVALUATION OF NUCLEAR PROCESSES

The Aim of MicroNuclear Physics

M.N.P.

The aim of Micronuclear Physics (MNP) is the achievement of low cost, high volume energy production through the application of an extremely highly efficient technology on a microscopic level.

The words atomic and nuclear have gained bad reputations because of the destructive nature of the atomic bomb and the failure of the nuclear reactor to deliver safe, clean energy. The goal of M.N.P. is to replace a bad technology based on misconception and misunderstanding, with a good technology based on truth.

The two failed products of the atomic age, the Bomb and the Reactor, are based on large scale out of control reactions of heavy, unstable radioactive elements.

M.N.P. deals with individual particles and precise energy flows.

To achieve a culture which is able to survive on a long-term basis, it is necessary to expand our reach beyond our own planet to replenish our resources and ensure our safety. The order of magnitude of energy production to achieve this is far beyond anything we are currently capable of, including the atomic bomb and nuclear reactor.

The goal of M.N.P. is to deliver this.

MicroNuclear Physics

AN INTRODUCTION

Micronuclear physics is a new field of science.

Micronuclear physics combines the most useful data of Quantum and Nuclear Physics and, with a great deal of logical process thrown in, attempts to break new ground in the areas of both.

In this work it is my intention to put forward a new look at today's most advanced sciences. A look that will inspire today's most brilliant minds to take a new look at themselves and what they are doing, so that they may push ahead with their work in a better way.

This is a research paper. It is a critique. It is a presentation of ideas. It is also a criticism of scientific thinking in this civilization, of how mistakes can be made and wrongly incorporated into our body of knowledge as truth. Mistakes that cripple our ability to progress beyond them.

Not to be one to only criticize, this work is intended to point the readers in the direction to the solution of what have been, for many years, unsolvable contradictions, problems and unknowns in these fields. They may not be perfect but they are for real.

Here are the results of years of thought in the area of theoretical physics. To the mathematically oriented they may not be sophisticated or complete, but they can be understood by anyone with a good education. It does not take a graduate student in physics nor a college professor. And in this way then, this knowledge can be used and most importantly it can be enhanced by those who do qualify.

I have found in writing this work that "discoveries" I have made were already known to others. It is likely that other conclusions I have made are equally as valid.

Definitions

QUANTUM MECHANICS AND RELATIVITY

A Quantum is defined as an indivisible unit of energy. Quantum Mechanics, that is, Quantum Physics, deals with energy as indivisible units.

Quantum Physics first came about as a way to explain the phenomenon of light. It has been a very controversial issue as to whether light is a particle or a wave. Light at first appears to be a wave because it has a frequency and acts like a wave in many different ways. But it also appears to be a particle, as it can obviously travel through the vacuum of space and waves normally have the need to travel through a substance like water or air.

Quantum physics deals with this by calling light particles "wave packets". What this means is that when a "particle" of light is created it is an indivisible bundle of wave energy called a "photon". Just as you cannot have 1.7 children in a family, you cannot have 1.7 photons. You have to have a whole number. However, like children, photons can contain just about any level of energy.

Photons are electromagnetic waves. They are part of the broad spectrum of frequencies which starts with radio waves on the low end, up through microwaves, visible light, ultraviolet, x-rays and cosmic rays on the high end. The higher the frequency, the more energy a photon has to give.

So, photons are much more than just light. The thousands of radio waves broadcasting around the world, the ultraviolet rays that burn the skin, the x-rays used to photograph inside of objects, are all photons.

That a photon is an electromagnetic wave means that as it moves it is made of an electric field and a magnetic field. These fields are what hold its energy, and that is what photons do, is hold energy as it is transferred from one place to another. In fact, all forms of energy transfer occur through the movement of photons. Photons are energy, and energy is photons.

For example, when a radio wave contacts a radio antenna it creates a small electric current in the metal. This energy is picked up and amplified by the circuitry to an audible level of sound. When light strikes a solar panel, a chemical reaction takes place and electricity is generated.

Actually, it was Einstein who "invented" the photon, when in 1905 he put forward the idea of "particles" of energy.

In 1926 two physicists, Louis De Broglie and Erwin Schrodinger, introduced the actual equations of Quantum Wave Mechanics into the world. Their theories extended Einstein's concept of subatomic particles as dual particle-wave phenomena (photon "wave-packets") and advanced a new model for the atom. In their new theory they explained and mathematically defined a basis for the consideration of electrons as energy waves rather than as solid particles.

This theory ran into trouble, however, because there was difficulty in pinning down some of the equations, and it was asked to explain the medium through which the electron waves were travelling. This question was never answered. Instead, a theory of cause and probability was advanced by Max Born. Rather than explaining what was actually going on, he proposed that the location of an electron in its cloud could not ever be exactly known, only predicted by the probability of its proximity to that location in space. In fact, Max said that the wave nature of electrons was not real, that it was just the probability factor that made them look that way.

This was a bit obscure, to say the least. In fact, Einstein was not content with this and since that time the Quantum Wave model of the atom has not been easily understood and Quantum Mechanics has advanced little beyond where it was in 1926.

Had the wave theories been widely accepted and followed as a matter of course science would be much farther advanced than today. However, these were dealt a death blow in 1927 by the Heisenberg Uncertainty Principle. This was not really dangerous in itself but its interpretation has brought nuclear physics to a grinding halt for nearly a hundred years.

Back in 1927 physicists were working to confirm or deny the theories of quantum physics by examining these particles up close to see just what they were up to.

More specifically, there was trouble in examining these electrons. It seemed they could not know both the position and momentum of these "particles" at the same time, because in measuring them either their position or momentum had to be altered. After all, they are very small and easy to disturb.

The principle states only that you cannot know both these things at the same time, for if you measure the position the momentum is changed, and vice versa. This is not only true, it is also very harmless. But what was done with this is quite final. It solidified and proved Max Born's probability theories.

Suddenly, physicists were looking upon the electron orbits as "clouds of probability". You could not know where electrons were at any given time, there was only a "probability that they would be at any one place in the vicinity of the atom, and this area of "probability" became known as the electron cloud.

Quantum physics was based on the premise an electron was an energy wave, not a particle at all but a standing electromagnetic wave around the nucleus. Not only this, but the nucleons themselves were also considered to possibly be standing Electromagnetic waves themselves. Now we are told that it is a particle of probability, a point of chance that could never be observed.

Even now all calculations done in quantum physics are based on probability, and nothing is too certain. The science is virtually immobile because of this; because nothing can be known for certain little is understood and little knowledge has been gained since this principle was advanced. Even Richard Feynman, leading authority in the field, stated that we could not ever really know what we were dealing with here.

So, for nearly a hundred years, physicists have been working to discover more about subatomic particles in order to discover more about atomic particles.

But there is a contradiction here. Quantum physics is the most advanced and accepted theory of the atom, and it supposes that atomic particles are actually Electromagnetic waves. So, back in the 1920's, a separation began that put philosophical differences in the middle of this scientific issue.

Einstein's answer was this: "Quantum Mechanics is very impressive but I am convinced that God does not play dice."

What should have happened in 1928 then was this:

- The Heisenberg Principle is recognized as being scientifically correct, but not a barrier to further discovery.
- Quantum probability fields are acknowledged as being methods of prediction, but not the last word on electronic structure.
- Physicists continue to postulate atomic phenomena as the result of wave functions and nothing else.

What should have resulted?

- The electron laser is invented, then the proton laser and finally, the antiproton laser. So much energy is made available by the combination of the proton and antiproton lasers that space travel is made practical by 1940.
- " $E=mc^2$ " becomes the basis of interstellar travel, not genocide.

Background

A HISTORY OF ATOMIC RESEARCH

It is my proposition that today the sciences of Relativity and Quantum Mechanics are in a totally disabled state and have been for nearly a hundred years.

Einstein's Special Theory of Relativity is actual fact is a body of data whose original purpose was to very accurately explain the wave nature of light. This has been proven correct, but the same data has been so badly misapplied in its popular form that what is currently viewed as "Relativity Theory" by most can be proven false, in my opinion, in sixty seconds or less.

The General Theory does not even apply to reality closely enough to be confirmed or denied other than in isolated instances and in that way, it is worthless. Today's theories of gravity and the evolution of the universe are so overly complex that they are of no help whatsoever.

The current theory of atomic physics, having evolved since about 1900 AD, presents a model of the atom initially conceived by Rutherford and Marsden and modified by Bohr in 1911. This atomic model shows a mostly empty structure containing protons and neutrons as small solid particles in a nucleus orbited by electrons, also small solid particles.

This basic model has since evolved through the work of many scientists over the past century to include a wide range of atomic and subatomic particles explaining various phenomena of forces and interactions between the nucleons and orbiting electrons and between the subatomic particles themselves.

But there is another story, little known amongst the general public, because it is filled with ideas which are thought to be very difficult to understand. To the informed physicist, it was only up until 1924 that the atom had been viewed much as it is today by classical physics, with a positively charged nucleus orbited by negatively charged electrons. Yet for most this is the state of the art.

Around the turn of the century James Clerk Maxwell came up with the idea that light is a wave phenomenon and equations to explain its behavior. These were revolutionary and an important contribution to science, but they did not explain everything as the idea assumed that light could transfer energy as a continuous flow, and this was not what was occurring.

It was Albert Einstein that solved the mystery. He put forward the idea that the behavior of light was also a particle phenomenon and postulated the existence of photons. These were particles of light energy that transferred energy in finite quanta, and this was the beginning of quantum mechanics.

Einstein also came up with the theory of relativity, whose original purpose was to explain the mechanics of the existence of a photon in space without having to have an "etherial" medium of transmission. Later, this explanation of an energy phenomenon was mistakenly extended to explain the motion of actual matter near the speed of light.

This led to the development of Quantum mechanics which changed the scientists view of the atom from a matter phenomenon to an energy phenomenon. But because this was not clearly understood, the consequences in turn have not even begun to be realized. This is why the old model of the atom persists and the Quantum view of the atom is left to graduate students and physicists.

A SIMPLE OVERVIEW OF THE ATOM

Atoms are the building blocks of matter. All matter can be broken down into molecules, and all molecules can be broken down into elements. Molecules are groups of atoms and elements are individual atoms. Elements are the smallest recognizable components of matter.

Atoms can be broken down into three types of particles, each with a specific electrical charge: negatively charged electrons, positively charged protons, and neutrons which are without charge.

The popular conception of the atom is a tiny nucleus of protons and neutrons "orbited" by electrons circling the nucleus at a distance of a thousand times the nuclear diameter. This is a very simplified version of the truth.

The number of protons in an atom is called the atomic number, and determines the chemical element of the atom.

The number of neutrons in an atom is called the atomic weight, as this determines the heaviness of the element. This quantity is slightly variable within the atom and this variance determines the "isotope" of the atom.

The number of electrons in an atom is approximately equal to the number of protons. This quantity is more highly variable and determines the chemical bonding properties of the atom.

Electrons in the atom are arranged in groups called shells and sub-shells. These shells represent levels of energy. Electrons can jump between shells as their energy level changes, and each level of energy is specific and not variable. These levels are referred to as quantum states, as an electron must change directly from one energy level to another in order to jump from one shell to another.

There are two further properties that make up the quantum state of an electron. These are the direction of spin and the angular momentum of the electron. There is a natural law that no two electrons can exist in the same quantum state within the same atom. That is, no two electrons in the same shell can have the same spin and angular momentum. This limits the number of electrons in each shell and sub-shell, and is the basis of electrical interactions that determine the chemical bonding properties of the elements.

Nuclear structure has not been as thoroughly explored. However, there is a current theory which postulates that atomic particles are made up of smaller particles called quarks. Unlike atomic particles, quarks have never been isolated or viewed. Micronuclear physics does not agree with this theory.

Micronuclear physics forwards and extends the basic theories behind Quantum Mechanics, that atomic particles are composed of energy waves. And energy is motion.

USE OF THE ATOM IN ENERGY PRODUCTION

Modern energy production techniques all use atomic properties. The transmission of electricity is of course done with electrons, but to create the energy nuclear power plants use reactions within the atomic nucleus, under tightly controlled conditions, to generate heat.

Above simple mechanical work, the lowest level of energy creation is by chemical reaction. Because chemical reactions are the recombination of elements that occur through the swapping of electrons, it can be said that all methods of chemical energy production use some sort of atomic reaction. The shattering of interatomic bonds is what either creates a transmittable energy or converts mechanical energy into a transmittable energy.

Burning wood, coal, oil and gas use fire as a chemical reaction. Dams use turbines to convert motion into electricity, which is a flow of electrons through a conductor. Solar panels convert heat into electricity. The energy output from a chemical reaction is in the form of infrared, visible and sometimes ultraviolet light, a narrow band of the Electromagnetic spectrum.

The next highest level is by nuclear reaction. This involves breaking the nuclear bonds of atoms, rearranging the nuclear structure by splitting it apart and, on a higher level, by fusing it back together again. Nuclear reactors use radioactive elements to generate heat.

Radioactive elements are the heaviest elements in nature, having the largest number of protons and neutrons. In these elements the nucleus has a natural tendency to break down by emitting neutrons (which is why they are called radioactive) until the atom becomes unstable, and this then causes the element to change by splitting into two lighter elements. This process does not stop until a stable non-radioactive element has been reached.

For example, a mass of the radioactive element Uranium left alone will eventually turn into Lead over a period of millions of years. As another example, in an atomic bomb a mass of Uranium is converted into Hydrogen within seconds.

The energy output from high yield atomic reactions extends all the way from radio waves up the spectrum to high energy gamma rays. The energy yield becomes discontinuous above the highest energy X-radiation. That is to say that at frequencies higher than that of the electron, the output assumes particle form by emitting energy in the form of individual particles rather than continuous wave output.

There is only one type of reaction above nuclear, that of total conversion of atomic particles to energy. This can only be accomplished by a complete annihilation of substance in a matter-antimatter reaction.

The key to all of this is that the closer you get to the nucleus of the atom, and to breaking it down into smaller pieces, the more energy you get out of the reaction. You could list a hierarchy of energy production reactions, each about 10,000 times as powerful as the one below it.

NUCLEAR ENERGY AND ANTIMATTER

The last one, antimatter, is the total conversion of matter to energy. This is also called total annihilation. This has been the subject of much speculation and science fiction. In fact, most of the civilized world knows that the Starship Enterprise uses Antimatter as a fuel source.

What is antimatter? First a simple explanation. It is the opposite of matter. It is matter made up of positively charged electrons (called antielectrons or positrons), negatively charged protons (called antiprotons), and neutrons (called antineutrons).

The idea behind this is that if you combine an electron and a positron, you get a reaction that creates energy with no mass left over, and likewise with the proton and antiproton.

The difference between this reaction and a nuclear reaction is that in a nuclear reaction you have mass left over. In fact, every proton and neutron that went into the reaction comes out of the reaction either in the form of lighter elements or "free" unattached neutrons.

A nuclear reaction that splits atoms apart is called "fission". In a fission reaction free neutrons are produced in large quantities and these particles alone actually are what is known as atomic radiation. Neutrons fly through living tissue at high speed like tiny bullets breaking apart the delicate cellular structure. In sufficient quantity they will destroy the body's chemistry to the point where it cannot repair itself. This is the purpose of the "neutron bomb", to kill the people while saving the real estate for the victors.

In an atomic fission reaction the energy conversion comes from the change of elements. Energy is released out of the "binding force" that is set free when a larger element breaks down into smaller ones.

An atomic fusion reaction is similar. Smaller elements combine to form heavier elements. Still, binding force is released as the heavier elements have less total binding force holding them together. That is, fusion is not quite the opposite of fission. With fusion it takes more small elements to fuse into the large elements, whereas in a fission reaction you get fewer small elements out of the large elements.

In the Hydrogen bomb, the atomic fusion reaction is an extension of the fission reaction. After larger elements are broken down into smaller ones, the smaller elements then re-combine. At both stages, fission and fusion, binding energy is released, but the fusion reaction releases energy orders of magnitude higher than the fission reaction.

The antimatter reaction is stronger yet. Here, all matter is converted to energy. Pairs of electrons and positrons, protons and antiprotons, neutrons and antineutrons annihilate each other, releasing energy in the proportion given in Einstein's famous equation " $E=mc^2$ ".*

Antimatter has not been found to occur naturally in this universe, but it can be and is at this time manufactured in particle accelerators. The drawback is that current techniques are very crude and it takes far more energy to create antimatter than is released in a matter-antimatter annihilation. The justification for this is that once antimatter is created and contained, it can be transported as high energy and very lightweight source for space travel. That is, as soon as antimatter engines come to be.

THE FUTURE OF ANTIMATTER

The existence of anti-particles was first postulated back around 1930 when the first bubble chamber experiments were carried out. High energy particles colliding with ordinary matter produced unexplainable reactions. These were tracked down and the existence of antimatter was verified.

Today, antimatter is produced and stored on a regular basis, and even though antiprotons and positrons are actually being created and stored by the billions, this still only adds up to quantities on the order of 10^{-15} grams. On the timetable of current technological projections, it will be another 100 years before antimatter can be produced in quantities that are practical and useful.

What if antimatter were easy to make and was a common energy source? Someday it may be, but along the lines of current work, that day is far away. But what would have to be different for this to happen in the near future, and what would atomic theory have to say?

In order to answer this question, we must first take a closer look at the atom and at what it is, how it works.

This includes both internal structure and energy phenomena. We will begin by reviewing electron energy.

Atomic Structure

PHOTONS AND ELECTRONS

Photons were first "discovered" by Einstein. In fact, the original purpose of relativity theory was to explain how energy transmission could occur in a space without a medium of transmission, a vacuum. This evolved into an explanation of how anything could travel at the speed of photons (the speed of light).

Photons are described as packets, or quanta, of energy. They are emitted by electrons and are absorbed by them. That is the total activity of photons. They come in all wavelengths, from the lowest of radio up to the hardest of X-rays.

Electrons have been found to orbit the atomic nucleus in shells. These shells are arbitrarily called the K, L, M, N, O, P and Q shells. Each shell holds a certain number of electrons, and the larger shells even have up to four sub-shells each, called the s, p, d and f subshells. Each shell and sub-shell have also been found to have specific shapes.

In the field of Quantum Physics, these shapes are called "probability fields". Electrons are too small to be individually examined without altering their properties in the process. In other words, since we observe things using photons, and since photons are absorbed and emitted by electrons, we cannot observe the exact motion of an electron, for to observe it, the electron would have to absorb and emit a photon and this would change its natural motion and the purpose of our observation would be defeated.

Therefore, electrons are observed only in groups and the orbital shapes show where the maximum probability occurs for the electrons to be found near the atom.

Electrons can contain variable amounts of energy. The energy is proportional to the wavelength of the particle. Electrons in higher shells have more energy than electrons in lower shells. Thus, it follows that electrons in higher shells have shorter wavelengths than electrons in lower shells. However, they are still the same size as the lower energy electrons. This manifests itself as a more complex shape which allows for more energy, which means more motion, to fit in about the same amount of space.

Electrons in the outer, or highest energy shell of the atom are available for bonding with other atoms. Most atoms do not have their outermost shell full. Bonding between atoms occurs when electrons in the outer shell of an atom become shared with the electrons in the outer shell of another atom.

The six elements that do have filled outer shells are gases. They are electrically neutral and do not bond naturally. These include helium, which is used for lighter than air craft because it will not burn. Neon, Argon, Krypton, Xenon, and Radon are also neutral.

Electrons can gain and lose energy, but only in certain specific amounts. These amounts are called quanta. This is where the term Quantum physics comes from and why photons are called quanta of light. Quanta means a specific quantity, and when electrons gain and lose energy it is in the form of absorbing and releasing photons.

Only electrons in the outer shell of the atom can gain or lose energy. When an electron gains or loses energy, it changes its position within the orbital shell structure of the atom. Electrons gaining energy jump into excited orbits in higher energy shells until they have so much energy that they separate from the atom completely. An electron losing energy sinks back down until it is "at rest" at the minimum energy level that is within the limits of stability for the innermost shell that is not full.

Lasers operate on this principle. In a laser, energy in the form of light or heat is pumped into the "lasing" area. The electrons are stimulated to the point where there are more electrons in excited orbits than in "rest" orbits. At this point there is plenty of room for them to fall back down to a rest orbit. All that is needed is to release some of their stored energy. The continued inflow of light causes this to happen. When an excited electron is struck by a photon and cannot absorb the energy, it releases a photon of its own in the same direction and frequency as the photon that strikes it, and falls back. So, a cascade of coherent light begins at the point of lasing.

Thus, the word LASER means Light Amplification by the Stimulated Emission of Radiation. Of course, this will not happen with any chemical element. Elements are selected that have desirable outer shell properties.

This demonstrates how photons and electrons interact. And it can be practically concluded that as photons originate and terminate as part of electrons, that electrons are in fact made up of photons and are themselves Electromagnetic waves.

Further, light radiation, the visible portion of the Electromagnetic spectrum, is generated in LASER technology by changes in electron orbit energy states with the resultant wave frequency determined by the magnitude of the change of state.

Therefore, a "photon", or unit of Electromagnetic wave energy, is at some point a part of the electron in an excited state. As the frequency of the fledgling photon is dependent on the physical size of the electron orbit, it is possible to conceive firstly that the sinusoidal shape of the Electromagnetic wave may be a result of the release of energy from a path of circular or "Lissajous" pattern.

It is possible to conceive secondly that the electron may be composed wholly of electromagnetic energy and if then, the electron, a major aspect of atomic structure is actually an electromagnetic phenomenon, this concept can also extend to the proton and neutron as similar phenomena.

QUANTUM PHYSICS

This concept of electrons as electromagnetic waves was originally theorized in 1924 by Louis DeBroglie and proven by Erwin Schrodinger in 1926. By that time two different systems of mathematics had evolved to explain the phenomenon, and to this day it is the starting point of Quantum physics.

But for some reason this is not popularly known, nor taught in basic science classes and the field of Quantum Physics is largely unknown to the general public. Why are other concepts being taught that are known to be false ideas?

The reason for this is that in 1927 a principle was added to Quantum Physics by Werner Heisenberg. It states that we cannot know both the position and momentum of a subatomic particle at the same time. This is true in that as stated above, to measure an electron is to alter the property we are measuring. But this statement has for the past hundred years been used as an insurmountable barrier to the progress of Quantum Physics. The electron orbits were relegated to the status of "probability fields" which leave us with nothing to hold onto and nowhere to go. Hence, for the past hundred years physicists in search of further data on atomic structure have turned to the particle accelerator (or "atom smasher") for the answers, and progress has slowed to a minimum. The name of this principle headlines the failure of Quantum physics. It is the Heisenberg Uncertainty Principle.

One of the most incredible aspects of this is that it is even postulated in Quantum Physics that the Proton and Neutron are also electromagnetic waves, but this cannot be proven so it is ignored.

We will go on to explore the consequences of assuming that it is true.

THE ELECTRON WAVE

Let us take a look at electrons first, as these have already been modeled as waves. Assume that the electron is a wave whose wavelength is a binary multiple of the diameter of the electron orbit. Its motion is to spin like a gyroscope, very solid but itself invisible from the speed of its motion.

The allowable electron orbits are determined by the wavelength of the electron wave. Electron orbits have been measured at 10^{-10} meters. So, the size and shape of electron orbits is known. For the innermost orbit of the Hydrogen atom, for example, the wavelength is 1.6 angstroms. This, taken as the longest wavelength, gives the electron a frequency in the range of 10^{18} cycles per second, which is of course in the x-ray band of the spectrum.

As a comparison, the highest frequency that can be electronically generated with current technology is in the microwave band at 10^{12} cycles per second. Lasers can go even higher, all the way up to the ultraviolet band at 10^{15} cycles per second. The electron frequency is still 1000 times higher than that.

Efforts are being made to come up with a laser that will produce output in the x-ray band of the spectrum. This began as part of the Strategic Defense Initiative (or "star wars") space satellite defense program. It is not a coincidence that the frequency band of x-rays is the same as the frequency band of electrons, x-rays are electrons.

That is, x-rays are electrons dropped totally out of the atom, that have been totally converted to a photon state.

The current industrial method of x-ray production is very crude. A high energy electron beam is fired at a metallic target and the resulting spray of x-rays goes in all directions. Most of them are absorbed by lead shielding, but a small portion of these are directed toward the target to make an x-ray photograph. X-rays of this kind are not coherent light as in a laser.

Current x-ray laser technology also consists of a few very crude techniques. One is to detonate a small yield nuclear device which in turn vaporizes a metallic strip, releasing x-rays for a millionth of a second. Another is to vaporize the strip using the most powerful lasers available, which take up the size of a warehouse and give off millions of watts of energy. A "Free Electron Laser" that generates x-rays directly has been built in the Stanford Linear Accelerator Center.

THE PROTON/NEUTRON WAVE

Let us go on to assume that protons are waves. It is now easy to calculate the frequency of this wave as the size of the proton has been accurately measured. Its diameter is 10^{-15} meters which gives us a frequency of 10^{24} cycles per second. Nothing more is known about its structure, so the simplest model can be used which would give it a spherical shape.

Now the neutron. It has been observed that the neutron is not a stable particle outside of the nucleus. When a neutron leaves the nucleus, it does not last forever. In fact, its average lifetime is about fifteen minutes, at which point it splits into an electron and a proton. So, it is not really a unique particle at all, but made of two already known particles. Therefore, its structure must be a combination of the two. More on this later.

It is possible that the atomic nucleus possesses an "orbital" shell structure similar to the way electrons are organized around the nucleus. If protons and neutrons are just as much waves as electrons, the main difference is in size.

In electron shells, no two electrons can have the exact same motion, where motion is measured as a combination of spin and angular momentum within its specific shell.

Now if a neutron is made of an electron and a proton, where are the extra electrons? The only place for them is in the orbital shells, but these are all accounted for. The answer? The electrons are not in the orbital shells, they are in the nuclear shells, and the key to this nuclear shell model of the neutron is in the shape of its orbit, and depends entirely on the neutron's wave structure.

ATOMIC WAVES AND ANTIMATTER

We have now seen how electrons can be viewed as waves and how photons and electrons interact. Also, that protons and neutrons can also be viewed as waves, and that there could be a nuclear shell structure similar in function to the electron shell structure.

An x-ray laser has already been built. This device produces electrons in the form of a coherent beam with an exact frequency. If electron frequencies can be synthesized in the form of x-rays, with a little more experimentation would it not be possible to achieve the synthesis of anti-electrons in the form of anti-x-rays?

Waves

ELECTRON WAVES

In order to go further in this discussion, we must examine atomic structure up even closer yet.

It is a proven fact that a proton has a thousandth the diameter of an electron orbit. The big question is, what does an electron orbit represent?

It could represent any of several things. First, the common model shows an electron as a tiny particle, the same size as a proton, orbiting the nucleus. The problem with this model is that no one knows what keeps the electron in its orbit.

If "electrical force" is the answer, we need a conductor for this force. The currently accepted theory is that two forces called the "strong" and "weak" forces are responsible for holding the atom together. This theory is not complete, and the reason is that the current particle-oriented thinking in atomic physics means that we have to have yet another particle responsible for transmitting this force between the particles that are being held together, and these other particles have not been positively identified.

So now let us say that an electron is a wave. This means that there is a wave front that defines the location of the electron "particle" at all times. There are three possibilities for the structure of this wave front. It could be a point (one-dimensional), a circle (two-dimensional) or a sphere (three-dimensional). As a point is a degenerate sphere and would again place it in the category of a particle, so that one doesn't make much sense. As we know the electron does have a unique location within the atom and is not just a wobbly probability field, the sphere is too evenly distributed to give these properties. This leaves us with the circle. A new question comes up now, is the circle full or empty?

It is probably empty, as the electron orbit configurations that have been researched show that electrons do not occur within the nucleus, and that the atom is mostly empty space.

Although the atom appears as solid as the ground we stand on, the proton has been measured to have a diameter a thousand times smaller than an electron orbit, and there are no known forces which occupy the remaining atomic volume. Extending this calculation into three dimensions gives the nucleus a volume of only a billionth of that of an electron orbit, which is why the atom is said to be made up mostly of empty space.

As far as the particulate appearance of the electron, if we use the ring-shaped wave front as a model, we can see that the point on the wave that is moving with maximum speed would manifest the highest inertia and so would appear as the center of what could be construed as particulate mass.

Now, back to the neutron.

NEUTRON WAVES

The biggest question yet is, how can the neutron, a particle which is just about the size of a proton, hold a proton and an electron and still be so small? Is it really that small?

Here are the facts. The neutron has a mass of 1931/1930 that of the proton and the electron has 1/1836 the mass of the proton, which is enough to account for the difference. However, the electrical charge of the electron and proton is equal and opposite and the size difference between them is about a thousand times. If you care to do some multiplying, the statistics show that when size is multiplied by mass the result is at least of the same order of magnitude, so it can be concluded that increased size makes up for reduced mass when it comes to charge.

The neutron has a zero charge, and so it obviously has both positive and negative charges combined. The easiest way to visualize this is to consider the neutron wave as analogous to an FM radio signal. This signal combines two frequencies, the transmitting frequency in the megahertz with the signal to be transmitted in the kilohertz, thus placing two frequencies together in one signal but separated by three orders of magnitude, just like in the neutron.

The resultant neutron wave shows the concept of the electron component as a function of wave form senior to wave length. The waveform concepts also lock together the charge components of the atom and eliminate the necessity to link them together with other, difficult to prove, forces.

Atomic Forces

STRONG, ELECTROMAGNETIC, WEAK AND GRAVITY

Current theory states that there are four forces in the universe. The strong, weak, electromagnetic and gravity. The strong and weak force are responsible for reactions between nuclear particles. The other two are well known. The strong and weak force have not been positively identified. In fact, gravity has not even been identified. No one knows what makes it work. So, it seems that these four forces are not based on a very solid version of reality.

MicroNuclear Physics proposes that there are only three fundamental forces and that they are electricity, magnetism, and gravity, and we will now explain where these come from and why there are three and only these three forces in the universe.

STABILITY OF PARTICLES

To begin with, there are only four stable particles in the universe.

Two of these are the proton and electron, both of which will last forever if undisturbed. The third is the photon. Photons have travelled billions of light years across the universe to arrive in telescopes on Earth, so this has been proven. Finally, the neutrino is stable enough to travel just as far and long.

There are three major differences between the first two and the last two particles, which have a lot to say about nuclear structure in the universe.

First of all, the first two particles, the proton and the electron, are charged, and the last two, the photon and the neutrino, are electrically neutral. No forces can come about from the interaction of uncharged particles without actual physical contact with them.

Second of all, the last two particles are absorbed and emitted by the first two particles in all cases, so can be looked upon as parts of them and responsible for the transmission of their forces.

Third of all, the photon and the neutrino always travel at the speed of light and in fact are travelling wave versions of the first two particles which are stationary standing wave phenomena that do not naturally move when at rest. Protons and electrons follow Newton's laws. Unless acted upon, they remain at rest. Photons and neutrinos do not.

ELECTRICITY, MAGNETISM AND GRAVITY

Now for an explanation of the source of the three universal forces of electricity, magnetism and gravity.

The two particles which are both stable and charged and therefore responsible for wave transmission of forces have three possible combinations.

These are plus-plus, plus-minus, and minus-minus. We will soon show that the terms plus and minus, or positive and negative, are simply terms used to describe two aspects of the same phenomena.

Minus-minus interactions give us electricity. Electricity is composed of photons transmitting the force of electrons.

The plus-minus interaction gives us magnetism. An atom is a tiny magnet and consists of a positive nucleus being orbited by a negative electron cloud. An electromagnet consists of a nucleus of iron being circled by electrical force. A flow of electromagnetic energy ensues and the polarity of the magnet depends on the direction of the circular flow of charge around the core.

A natural or permanent magnet depends on the wholesale alignment of the magnetic fields of a majority of the individual atoms in the magnetic material.

This leaves us with one force and one reaction left: The plus-plus reaction and the gravity force. And so, we are left with the option that gravity must be the interaction of protons at a large distance. Perhaps transferred by neutrino energy at frequencies too high to measure with current technology.

CHARGE AND MAGNETISM

There is a question that has not yet even been officially posed by modern science, and that is, what is charge?

First, we will explain more closely how charge and direction affects magnetism. In the electromagnet, the polarity of the magnet is reversed when the direction of charge flow around the core is reversed. The polarity of the magnet depends entirely upon the direction of this flow. The rule for determining the direction is called the "right-hand rule".

If you curl the fingers of your right hand in the direction of the current, your thumb will be pointing in the direction of magnetic flow. A negative flow around a positive core in a clockwise direction causes the north pole to point in one direction. If the flow is counterclockwise, the north pole points in the other direction.

In atoms, the effect is similar. The atom as a whole follows the same right-hand rule. Atomic particles also have magnetic fields, called magnetic moments, based on the fact that they spin, and as spinning charged particles they generate magnetic fields. The proton follows the right-hand rule. The electron follows an opposite "left-hand" rule, as its charge is opposite so is its magnetic field orientation. The neutron follows the same rule as the electron.

In an antimatter atom, the rules are reversed, but notice that they follow the same rules according to polarity of charge. The anti-proton follows the same rule as the electron. The positron follows the same rule as the proton. The neutron is also reversed and follows the anti-electron.

So far, magnetism has been defined in relation to charge, and is said to be a property of something called spin. It is known that atomic particles spin and this causes magnetism. But it is not defined as to what the charge is.

MNP proposes that the spin *is* the charge. Considering that a proton is an electromagnetic wave, it has an exactly defined frequency. It does not move at the speed of light yet is made of energy which travels at light speed and so it is defined as a standing wave and its wave front spins in place at the frequency of the particle.

Thus, there are two characteristics which make the proton a unique particle. Its wavelength and its direction of spin.

This would be true for every matter or anti-matter particle.

GRAVITY AND ANTIMATTER

The generation of antiparticles is possible today, and even now an experiment is under construction where the force of gravity on antiprotons will be measured exactly. Physicists predict, through the mathematics of current theory, that the force of gravity will actually be greater than on normal matter. But they make this prediction without even professing to know what gravity is.

Let's take another look at this. Granted that electricity is an electron interaction, anti-electricity would be a positron interaction, and electrons and positrons would attract and positrons would repel each other just like electrons. Even granted that magnetism is a result of a bipolar charge in motion, the result of anti-magnetism on antimatter would be the same as magnetism on normal matter.

As an aside, there are a bunch of scientists that have been out looking for a "magnetic monopole" for decades. It seems to me they're as likely to find that as to find a stick with one end.

Now we come to gravity. We know that gravity is proportional to mass. We also know that mass is proportional to atomic weight, and that boils down to the quantity of protons and neutrons in the nucleus. As neutrons are made of protons and electrons, and we may eliminate the electrons from gravitic theory (anyone ever hear of an electron star?), this leaves the proton as the sole responsible particle.

Antigravity, therefore, would have the same effect on antimatter as gravity does on normal matter. But what effect would antigravity have on normal matter? The results aren't in yet, but following the examples of other forces and oppositely charged particles, it would follow that what goes up may not come back down. Perhaps this discovery will get things off the ground a little faster.

CONVEYANCE OF FORCES

Before subatomic particles are discussed, an implication of the above theory must be taken into consideration regarding the method of transfer for atomic charge and forces.

Atomic particles, being electromagnetic waves, would follow the physical laws of magnetic field intensity and field line influence. This puts the influence of the atom wave to infinity. Whereas it is true that a single atom exhibits virtually zero influence beyond its own electron wavelength, this phenomena changes with a very large group of atoms into situations where these can exert influence over increasingly larger distances. This is especially so with the addition of the influence of outside energy forces such as in the subjects of electricity and magnetism.

In 1926 it was asked; what medium conveyed the electromagnetic electron waves? The medium is the electromagnetic force itself, and likewise the individual particle waves can act as a carrier to convey other electromagnetic forces across their fields of influence. So, the conveyance of forces need not be directly by quantum energy wave packets such as photons and mesons.

As far as electrical energy, the photon has been described as the only particle capable of transferring electric charge, and as it transfers only negative charge, and as this is its form, the photon then can be seen to be the source of negative charge in normal matter.

Consider that magnetism and gravity alike may be transmitted between objects in space in the same manner as electrical voltage. The hotter an electron cathode becomes; the more electromagnetic energy is emitted in the form of heat and light. Finally, the level of electromagnetic energy present in the interaction becomes so great that a current of electrons can visibly be seen to move from cathode to anode. In smaller reactions the force is still there, though in smaller amounts.

Gravity, as a proton-proton interaction, could be viewed as being the electricity of the nucleus. True, electricity is a very fluid and volatile substance, and there are differences in this analogy. First, the solidity of the nucleons is a thousand times greater. Second, nucleons are not as volatile as electrons. Thus, gravity is more stable as a force, but that is not to say it cannot be created in a similar manner to electric current.

Perhaps the force of gravity is carried by the proton-photon, the neutrino. Or perhaps there is another particle which carries gravity and magnetism as the high frequency counterpart of the electro-magnetic photon: a gravi-magnetic neutrino.

Finally, to identify particles capable of transferring positron and antiproton charges and forces, all that is needed is to redraw the field components with correct polarity and frequency and chart the new field patterns.

Structure

SPIN

The question may arise such as, what is positive and negative spin? There is no evidence for this in the standing wave version of these particles, but there is plenty of evidence for what this is when the particle is converted to a moving electromagnetic wave.

As each particle is a standing wave, it has a moving wave counterpart. The x-ray is the moving counterpart of the electron. The "cosmic" ray is the moving counterpart of the proton as these high energy rays have a wavelength matching that of the proton.

Electromagnetic waves have a very definite structure. It can be seen that as it travels the wave front follows a corkscrew path, or helix, as the electric and magnetic fields alternate one quarter cycle (90° or $\pi/2$) out of phase. It can also be seen that the helix moves in a clockwise direction toward the direction of motion. Every electromagnetic wave in the normal matter universe exhibits this same phenomenon. This is caused by the fact that the electric component of the wave and the magnetic component of the wave act at right angles to each other and so are 90° out of phase. Charted in three dimensions, this field phase relationship results in the helix path for a moving particle. For a stationary particle, this creates the spin basis of the magnetic field structure.

Although it is unlikely that this packet of energy is in the shape of a spiral, this is only the shape that represents the field fluctuations in its path. The photon maintains a steady profile spinning with a right-hand thread in its direction of motion as its fields maintain its existence.

In anti-matter particles, the phase relationship is reversed. Thus, in anti-matter particles the magnetic fields are reversed and in anti-matter atoms the magnetic field orientation is reversed as well.

Electric charge has been described above as a property of spin, but the concept of spin is not descriptive enough. Even if it is only spin, the next question becomes, what is spinning? Assuming these particles are made of energy and are indivisible, it can be postulated that the one basic property of energy is pure motion. Based on this, electric charge would be, more exactly, a property of motion. More specifically, a property of spin path, this path being unique and non-symmetrical for each energy level provided for by the Pauli exclusion principle.

We could even go so far as to say that the natural orientation of the universe is a right-hand thread. Consequently, an antimatter universe would consist not only of anti-matter and anti-gravity, but also anti-light and anti-radio waves and anti-magnetism with a left-hand thread.

It could be concluded from this that light and radio experiments to produce electromagnetic waves with a "left hand thread" should be easily created.

SUBATOMIC PARTICLES

It may have been noticed that the only particles that have not yet been discussed are subatomic particles. These are particles which are smaller than atomic particles. They include all other particles than those discussed.

All subatomic particles have lifetimes measured in the millionths or billionths of a second, and this says everything about them. These particles are not true entities, but merely smashed remnants of the real thing.

Subatomic particles occur only as by-products of atomic reactions. Of course, they follow specific laws of motion and energy and so fall into recognizable sizes and patterns, but their lifetimes are so short that they hardly seem to deserve much notice at all. And considering that the particles they come from are actually energy waves, their composition reveals little more than we already know.

ATOMIC EQUATIONS

And now a more complex area for those who like to work with mathematical models.

As far as mathematical representations of the infinitesimal properties of atomic structure, there are three categories that deserve examination. These are:

- 1) Existing Quantum Mechanical equations describing the attributes of Energy, Momentum and average Position for atomic and sub-atomic entities.
- 2) Solutions for the wave motion characteristics of protons, electrons, neutrons, photons and neutrinos.
- 3) Methods for developing equations which would represent properties for entire atoms and molecules.

EXISTING QUANTUM MECHANICAL EQUATIONS

There are many very thorough and complex equations and solutions within Quantum Mechanics which accurately describe the above-mentioned attributes for single electrons in any energy state (that is, for any shell and sub-shell). These equations could be repeated here if this were a mathematically oriented text. Since this is not such a text, there is little purpose in reiterating the specifics of these calculations.

However, what is important to discuss is the fact that these equations, as well as they do work for single electrons, cannot be used to describe multiple electron configurations beyond 2 at a time. This is because the solutions become hopelessly complex.

Therefore, it is safe to say that because the existing equations of Quantum Mechanics are insufficient to work with true atomic structure, there must be a better way.

Before we investigate what the "better way" would be, we must first take a look at what is our purpose.

THE PURPOSE OF ATOMIC EQUATIONS

A mathematical model, that is, a set of equations which describe a physical universe situation, is not useful unless it serves as a step towards further understanding and increases our ability to deal with the phenomenon.

In light of this, the sole purpose for atomic equations should be to describe the atomic wave motion in such a way that will allow us to achieve the aims of increased energy production. Note that Quantum Mechanics does not do this, but instead defines the wave motion as a region of probability, which leads to a situation of no real understanding instead of an increased understanding accompanied by increased potential applications.

So, the accent here is on the characteristics of wave motion, and how and why electron and proton orbital shapes are what they are.

THE EQUATIONS OF ATOMIC WAVE MOTION

All universal motion is composed of simple conic sections, that is, the circle, ellipse, parabola or hyperbola. In the case of wave motion, the cyclic patterns of the circle and ellipse are broken down into sine and cosine components.

Therefore, we can venture a basic equation that could apply to any closed loop helix-based motion, including electron and proton waveshapes. As this motion is a function of time, we begin with:

$$\begin{aligned}x &= a \sin \pi (it) + b \cos \pi (it) \\y &= c \sin \pi (jt) + d \cos \pi (jt) \\z &= e \sin \pi (kt) + f \cos \pi (kt)\end{aligned}$$

where t = time and $a, b, c, d, e, f, i, j, k$ are constants and where $0 < i, j, k < 2$ exclusive.

ORBITAL WAVESHAPES

The electron wave equation at higher orbital levels can be defined as a combination of harmonic circular motions in three dimensions. Also, electrons, protons and neutrons all belong to the class of particles that have been proven to follow the Pauli exclusion principle.

The Pauli principle states that no two particles can occupy the same quantum state. A quantum state has properties of shell, angular momentum, and spin. In the case of electrons this means that no two electrons can be in the same shell with the same spin and angular momentum. So, in this way, no two electrons are identical.

Since protons and neutrons follow the same principle, it is likely that the nucleus itself has energy levels in the same fashion, with protons at various energies occupying mutually exclusive paths of vibration in the same way as electrons. And who is to say that neutrons, being composed as they are of protons and electrons, are not some special combination of the exclusion principle for those two particles.

Starting with the basic set of equations above, the parameters change for each shell and sub-shell to describe the specific phenomena of how changing energy levels affect changes in waveshape. Specifically, each shell increases in complexity of waveshape while the individual sub-shells retain the same basic waveforms inherent in their structure.

That is to say that by actual experiment, each of the s,p,d,f shells have their own specific waveshape no matter which of the K,L,M,N shells they occupy, but as the energy level increases from one shell to another, so does the complexity of waveshape while retaining the same basic waveform.

THE ETHER

Having described now the exact phenomenon of particle waves, this brings us to another subject, and that is the question of medium of transmission.

Up until the 20th century waves were defined wholly and only as a disturbance propagated through a medium. That meant that a wave was not something solid which was moving from one point to another, it was a force that was transmitted by a mechanical motion of particles pushing each other along. That is, a pressure wave, transmitted through something solid. It was simple. Ocean waves travelled through water. Sound waves travelled through air and water.

When it was discovered that light was a wave that could travel through a vacuum where there was no medium of transmission, no explanation was at hand. At least not until 1905 when Einstein came up with Special Relativity. This was an explanation of how electromagnetic waves could exist by themselves without a medium of transmission

However, it was stated in Relativity theory that charged particles could not travel faster than the speed of the electromagnetic propagation without gaining infinite strength in its own forces.

Notice that nowhere does anyone question the nature of the speed of light. The question is, why does light travel as the speed of light? Why is 3×10^8 meters per second the top speed for an electromagnetic wave in a vacuum? How does a photon know how fast it is going? It has no ability to perceive, it has no speedometer, there should be no limiting factor.

The answer is that there is a limiting factor. It is stated that there is no medium of transmission for electromagnetic force, but that is false. The medium is the electromagnetic forces themselves. To conceive of the explanation, consider that there is nowhere in space that is completely devoid of light or heat. No matter what the location is in this universe, there is some point of heat or light affecting it, and so there are electromagnetic waves.

Photons are stated as being both particles and waves, and they are both. The wave nature of the photon has been shown. It has proven to be a travelling wave packet, or you could say particle as even though it is not completely solid, its location in space is small and limited.

Yet this may be challenged by questioning how it is that when we are as far as 10 billion light years away from some galaxies that we can still see them, although very dimly, through telescopes. It seems unlikely that it is possible for a body of energy to radiate enough particles of light to cover such an incredibly huge sphere of the universe billions of light years in radius.

Just as when waves are made in the water, so it appears that light waves are made in the electromagnetic sea of space. Smaller wavelengths create ripples within larger wavelengths, and because their range extends from infinitesimal to cosmic, these ripples expand out in all directions as far as they can go in the same manner as water waves. The universe is filled with electromagnetic radiation. You could even go so far as to say that light defines the boundaries of the universe.

This is the point. The speed of light through the medium of light itself has the limitation assigned by Einstein. The resistance of light itself is what slows light down to speed. But when placed in a vacuum devoid of any radiation of any kind, who is to say how fast light would go?

And so, who is to say that, given sufficient energy, matter itself could not reach any speed at all? The problem becomes not one of outwitting Einstein's theories, but one of energy production and electromagnetic "aerodynamics".

MANUFACTURE OF PHOTONS

Before moving on to specific practical applications of these theories, one more subject deserves very close attention. This is actual mechanics of the interaction of photons with electrons, and the life cycle of a photon from emission to absorption.

An electron is a wave front capable of occupying certain exact frequencies set by the rules of atomic structure. These frequencies represent specific permissible energy levels that can be occupied by electrons. It is when the energy level of the electron is disturbed that photons are emitted or absorbed.

A photon is emitted by an electron only when it goes through a change in energy by dropping to a lower orbit. The photon emitted has a frequency that is determined by the change in electron energy. As with the electron, the frequency of the photon is determined by its energy level. A drop of only one orbital level will result in a low energy photon, such as in a radio, whereas a drop of several levels will emit a very high frequency photon, such as in an x-ray machine or an electron laser.

The same is true in reverse. When a photon is absorbed, the electron jumps up in frequency and energy level, and a photon will only be absorbed if it has just the right amount of energy the electron needs to make the jump.

Let's look at this very closely. An electron is orbiting an atom at a low energy level. A stream of photons at various energy levels passes through the atom. One of these hits an electron, causing an increase in its energy. The frequency of the electron increases, which causes it to go out of phase with its current orbital path.

The atomic forces on the electron can now cause either of two effects. If there is not enough energy to overcome the atomic forces they can pull the electron back into place, causing the photon to be released and the electron to fall back into its orbit. Or they can push the electron into a higher orbit. Both processes cause the atom to regain its stability as a standing wave, and any instability is blown off as an open travelling wave.

Applications

MNP CONCEPTS

This completes the basic concepts of MNP, and leaves before us the task of putting these concepts to work in theoretical applications.

We will now review four areas.

- Electron lasers
- Fusion
- Antigravity
- Antimatter

In each of these four areas it will be seen that although the principles for advancement are known, the mechanics are beyond the scope of today's technology. It is in the next section, MNP field theory, that certain areas are scoped out to the nth degree in a search for the path that will lead to material success.

ELECTRON LASERS

All lasers operate on the principles described earlier, including modern attempts at building X-Ray lasers. In the X-Ray laser, extremely high energy levels are produced by pumping so much heat and light into the lasing material that it turns into plasma.

Electron lasers produce x-rays by attempting a drop in energy level from plasma to the lowest orbit possible. Taking this to an extreme, the highest achievable frequency would be produced by dropping an electron from a plasma state to complete nothingness, converting the entire electron to energy.

Here is a scale of electron energy production:

- Single orbit jump: low energy, radio waves result
- Multiple orbit jump: medium energy, visible light to x-ray
- Plasma to orbit jump: medium to high energy, UV to x-ray
- Plasma conversion: high energy, hard x-ray

If a laser at any frequency could be built where both the electric and magnetic field orientation were created not by chance, but deliberately, then could not an anti-matter laser be built where these orientations were reversed?

The combination of these waves would produce energy by total annihilation of the waves. And finally, if this laser could be pumped up to electron frequencies, then we would have a continuous matter-antimatter reaction available. Perhaps a laser could soon be tested using anti-hydrogen, which in the near future should be available in large enough quantities.

FUSION

Even on the nuclear level, energy is not being efficiently produced today. Perhaps if a receiver was built that could receive the high frequency waves that result from a nuclear reaction, we would have a better method of energy conversion than the current practice of using a nuclear reactor as a steam engine. The key to this is the ability to synthesize and absorb frequencies at that level.

In contemporary fusion test reactors, hydrogen isotopes are heated to stellar temperatures by different methods in the attempt to induce atomic fusion. Two of these methods are:

- by laser and
- by magnetic and microwave friction.

Both of those methods are an attempt to bombard matter with low frequency electromagnetic waves for the purpose of transferring energy.

In view of the fact that these waves have a wavelength, and the wavelength is much larger than the size of the matter units, this transfer must be extremely inefficient. In fact, it is probably a billion times less efficient than it would be if the wavelength was on the same order of magnitude as the particles. A much smaller quantity of these type of waves should produce the same result.

Fusion is the coercing of two or more atomic particles from separate spaces into the same space, overcoming their natural repulsive forces by raising their interatomic velocities (temperature) to the point where they end up together before they have a chance to repel.

The clue to cheap fusion power must be the ability to push these particles together with minimum force in, giving maximum energy increase.

The synthesis of photonic "open-ended" frequency vibrations on the same level as the electron and proton would lead to a true electron laser/particle beam. These could be used to synthesize not only fusion reactions, but antimatter and antigravity as well.

ANTIGRAVITY

The creation of an antigravity field and its utilization would be based on two datums previously stated herein.

These are:

- that gravity is a proton-proton interaction and
- that if the wave that carries the gravity field attracts like types of matter at large distances, that a wave with inverse polarity should repel like types of matter at large distances.

The key to sustaining an antigravity interaction would be not in the creation of a mass of antimatter large enough to lift a smaller mass of matter, but, as in electricity, the simulation of antimatter.

In electricity, charges are relative. There is really no such thing as a positive charge. It is a lack of negative charge, that is deficient in negativity relative to the negative pole.

This principle can be extended to gravity as the electricity of the nucleus. If a mass of matter can be surrounded by an antiproton field sufficient to “bias” it as a mass of antimatter relative to the gravity field of influence, then not only will this mass of matter have an anti-gravitic effect, but the antiproton field strength may also be varied to adjust the anti-gravitic influence to the desired degree.

Antimatter

MATTER/ANTIMATTER REACTIONS

This is entirely dependent on the structure of atomic particles, so let us examine what is known.

Charged particles with opposite polarity align in opposite directions when static or moving through a magnetic field. Charged anti-particles orient in the same direction as their "non-anti" counterparts. Thus, the same property which causes the electron to align or turn in one direction in a magnetic field also causes the anti-proton to go the same way. The only properties these particles possess is wave front spin-path and frequency. As the frequency is already different, the spin-path must be the similar property.

Electric charge is motion. Positive and negative charge are just different types of motion. One kind moves one direction in a magnetic field, and the other kind moves in a different direction in a magnetic field. With nucleons, each particle has its own charge spin and therefore its own magnetic field.

In order for a particle and anti-particle to annihilate they must be of the same wavelength. Protons and electrons will combine but are of different size and so remain separate and do not annihilate. Protons and antiprotons are of equal wavelength and readily annihilate when combined.

The particle pairs first line up by magnetic field attraction. In the case of normal matter proton-proton combinations, their spin remains in the same direction and so is reinforced. If an anti-proton is substituted, the identical magnetic field alignment causes the spins to align in opposite directions. The sum of the two spins is zero and the particles disintegrate.

THE SOURCE OF MAGNETISM

Determination of what a magnetic field is begins with determination of what a magnetic field does. A magnetic field is created when electric charge moves. This charge force must be conducted by photons, as a magnetic field can transfer electric charge across space and photons are the universal electric charge carrier. These photons have the same wavelength as the size of the field.

Magnetic fields on a nuclear level behave in a slightly different manner. Protons have magnetic fields. Other proton sized nucleons in their vicinity come under the influence of this field, which is always present, and since protons are very stable particles they do not gain or lose energy easily. It is likely that this magnetic force moves through space using photons (or neutrinos, a nuclear version of photons) as a carrier wave, much in the same way photon wave fronts spread through space using the electromagnetic ether as a medium.

This is most likely the same process for large magnetic fields, as they are just collections of small magnetic fields.

That photons transfer magnetism is a sure fact, as electromagnetic waves are made of electric and magnetic fields moving through space. Of course, the magnetic component of the photon is created by the moving electric charge.

So, we can conclude that magnetism is the orientation of other charges to the direction of motion of the charge creating the magnetic field, by those charged particles transmitting their spin motion through photon carriers.

ELECTRON/ANTIELECTRON CONVERSION

Practical application is the ultimate target of this work. The creation of energy from the total annihilation of subatomic particles is the most powerful energy source known. As a beginning, the conversion of electron waves is a sufficient energy source for experimental purposes.

There are three steps necessary for the production of energy from electron/antielectron conversion. These are:

1. The generation of a coherent electron flow, that is, an electron laser.
2. The conversion of such an electron flow into an antielectron beam, and the amplification of this beam to an energy level the same order of magnitude as the original electron beam.
3. The directing of these beams to an interaction location where the resulting photon wave energy output can be captured for use.

POSSIBLE METHODS OF ELECTRON CONVERSION

Going out on a limb, taking a chance, giving it all we've got, we can say that possible methods of accomplishing this conversion (using existing technology) are as follows.

1. The only economical method of generating an electron beam, coherent or not, is currently the cathode ray tube.
2. The highest energy electron carrier currently available is a strip of superconducting material. This may prove useful both as a population inversion area and in a device to achieve beam coherence.
3. In a laser, containment of the beam is achieved with mirrors and lenses. Electrons would need to be controlled using magnetic and/or electric fields.
4. To achieve stimulated emission, it may become necessary to align the electron fields by aligning the magnetic moments of their parent atoms.
5. Using the theory of magnetic fields above, atomic alignment could be achieved by locking the atoms in a strong magnetic field produced by a superconductor and then increasing their energy level by spinning the magnetic field at a rate close to their natural frequency. Currently the fastest switching devices put out frequencies in the terahertz band, 10^{12} , six orders of magnitude below the necessary 10^{18} .

6. Once stimulated emission is occurring at a high energy level, the goal has been achieved and the power output will determine the result. Power will be in the form of electromagnetic energy, that is, heat, light, and gamma rays. The chamber should be well shielded and some sort of magnetic device will be needed to direct thrust.
7. Once the technology reaches the point where these steps can be accomplished with protons/antiprotons, power output will increase by a factor of 10^6 .

SPECIAL RELATIVITY

A byproduct of MNP is an examination of Relativity theory. Because MNP not only deals with the nature of "light" itself, but postulates the ability to create vast amounts of energy capable of throwing millions of tons light years in small units of time, there are two reasons for examining relativity theory. One, relativity is based on the speed of light being a constant in the universe. Two, is all this theory really going to get us anywhere?

As was stated earlier, the original purpose of Relativity theory was to explain the phenomenon of the movement of electromagnetic waves through a vacuum, where there is no medium of propagation. This was later extended to General Relativity and Special Relativity, and mistakenly applied to the motion of solid objects travelling at or near the speed of an electromagnetic wave. This facet of relativity theory has not been proven beyond the logic of its mathematics.

So why is it that despite the popularity of this theory, in most science fiction literature the speed of light is being consistently broken, yet science attempts to lead us to believe this is impossible?

Now it is time to disprove the Special theory of Relativity in 25 words or less. Here is the fatal flaw: special relativity is based on the equation $x=ct$, however although this is mathematically sound, this is only a congruous measurement and not a true equality.

To illustrate the folly of this method of logic we have an easy analogy. Einstein proves the equations of relativity as showing how the measurement of a space ship travelling near the speed of light shows a greater increase in length as it gets closer to the speed of light. This is much the same as trying to measure the speed of a supersonic aircraft using signals that travel at the speed of the medium of sound, which in the case would be sonar, or sonic ranging.

A sound pulse sent out towards an aircraft as it flew by the measuring device faster than the speed of sound would never catch up to the aircraft and would never be reflected back to the device. The aircraft would appear to have left the universe of space and time altogether.

This is the same argument presented by relativity theory, only on a smaller scale. And it does not represent what is really happening to the aircraft, from the viewpoint of the pilot nor the viewpoint of the observer.

One might say that it has been proven that mass increases, following the same equations, occur when accelerating atomic particles to near lightspeed in cyclotrons. Well this is true, but again it is electromagnetic energy we are talking about and not physical dimensions such as time and length. Assuming the atomic particle is actually a standing electromagnetic wave, it is really an energy packet

that is being accelerated and not a mass packet, so it would be the energy that is increasing and not the mass.

Of course, there is an energy increase. Look at what's happening. An electromagnetic particle, which has all the dynamics of light in a static form, is being accelerated to the speed of its own medium. More and more energy input is required to overcome the resistance of the medium.

The apparency of mass increase is really an energy increase necessary to overcome what could be called luxon wave shear.

EXTENDED CONCEPTS

The premises of MNP can be applied to other areas of science and technology.

NEUTRINOS

These are massless and stream out in massive quantities from nuclear reactions, travelling across the universe, through dust, planets and galaxies virtually undetected. In the same manner as a changing electric current generates electromagnetic photon waves for communication, might not a proton be able to make neutrino waves? These would certainly have a much greater range.

REDSHIFT

In view of the way gravity has been shown to affect electromagnetic waves, is it possible that the phenomenon of redshift is more a product of gravity rather than an expanding universe?

TACHYONS

If the speed of light is a constant determined only by the resistance of the electromagnetic medium, would it not be possible to generate particles with an energy level sufficient to overcome the lightspeed barrier? If this could be done, it would be a major step in the achievement of more instantaneous communications over interstellar distances.

To answer these questions and more questions raised earlier, we must pull apart the structure of matter and energy not down to the floorboards but even further; not down to the foundation, not to the bedrock but to the core itself.

First, we will introduce a few concepts in the area of magnetism and the frequency spectrum of energy waves.

ANTI-MAGNETISM

First, a note on electricity. A flow of electrical energy is caused by a potential excess of electrons at one location relative to another location. Flow is enhanced by conductive material, which allows electrons to jump orbits between atoms in the flow path with less energy. Resistance causes the release of energy as photons in the form of heat and light radiation.

Electricity is an energy form based on the interaction of like spin-frequency "charges". As magnetism is a product of unlike charges, and gravity is a combination of like charges, gravity and electricity may exhibit common properties.

The result of this possibility would be that a gravitic flow could be caused by an excess of protons. Further, electron flow creates a measurable magnetic field when in motion. So, should proton flow produce a similar though perhaps opposite, "anti-magnetic" effect.

In this light there would be three forms of an experiment designed to determine the similarity of proton motion to electron motion in force construction: straight line flow, circular flow with a force intensifying core, and circular flow without such a core.

EXPERIMENT

I propose an experiment to test whether proton flow causes gravitic and magnetic force, and what the magnitude of that force is.

The first thing that is needed is a reserve of free protons. The second is to cause them to flow. The third is to measure the result of that flow in terms of gravitic and magnetic forces.

- 1) Free protons. Going back to electricity, it turns out that strong, controlled electrical forces are created through the use of artificially generated free electrons. Generating free electrons is a fairly easy task, but it is also not too difficult to strip a quantity of hydrogen atoms of electrons in order to accumulate a free reserve of protons.
- 2) Proton flow. Whereas it is a natural phenomenon for electrons to flow between atoms, it is not known whether protons would do so. In fact, this may be only made to occur in a plasma state, and there is no known material that could serve as a conductor. However, we could cause protons to flow within a vacuum. This is done in accelerators every day using magnetic fields, but could also be done using a charge density attraction similar to electricity.
- 3) Force measurement. As nuclear (proton) reactions produce energy orders of magnitude greater than chemical (electron) reactions, the strength of the force merits special attention. Magnetic force measurement is easily accomplished with existing magnetic force meters. Gravitic force influence is easily accomplished by measuring the effect of the flow on a nearby mass using a conventional weight measurement device, i.e. a scale.

It may be significant as to whether the core used is electrically conductive or positively or negatively ionized as a simulation of positive and negative matter. Any experiment conducted should take these points into account in a serious manner.

ELECTROMAGNETIC/GRAVIMAGNETIC SPECTRUM

The ultraviolet catastrophe marks the limit at which electrons can radiate electromagnetic energy. Above this, electrons near the totality of conversion of their energy in the form of x-rays, and accomplish it in the form of gamma rays where entire electrons are converted to moving electromagnetic waves not by heat, but by collision and neutron decay.

So, there must be something further to continue the scale.

Beyond the point of gamma ray energy, we come to nuclear emissions in the form of neutrinos. The electromagnetic spectrum above the point of x-rays has not been well defined, so beginning with gamma and cosmic rays, the “gravimagnetic” spectrum can now be defined as its successor. Most likely there is a gap or overlap area where the two energy spectrums intersect, but since these are based on the conversion of different basic particles, the two spectrums remain separate.

MNP Field Theory

FUNCTION OF FORCES

This data begins a serious effort to bridge the gap between theoretical and applied physics. In order to harness the energies which are the goal of MNP, we must first take an honest look at the function of forces in modern science, and then create experiments which can answer the key questions that are formed.

EXPERIMENT

I propose an experiment to devise a spin-path which is non-symmetrical when reversed (re-orientation will not allow any duplication of the original path) and which has torque in all three x,y,z axes.

Once this is accomplished, increase the spin torque to demonstrate higher standing wave frequency harmonics by achieving already known waveshapes. Finally, implement equations of motion to describe these.

In further experimentation, it could be determined whether the antiparticle spin path is exactly the same as the normal particle spin path, but moving in the opposite direction.

A simulation can be run to determine whether or not electron clouds complement in unfilled "outer shell" states for the reason that directional shell groups become balanced and stable, with spin paths in all axes of all waveshapes. Extra shell groups may fill areas that are vacant during electron sharing phases, giving necessary dimensional stability to the atomic structure, and creating a state of minimum entropy.

This can be further applied to the nucleus, to see if nuclear spin-path states are similar to electronic spin-path states, and whether these are complementary angular momenta, each contributing to stability in opposite directions on the x,y,z axes. And, how the neutron waveshape incorporates the electron-proton waves in the confines of nuclear space, and how this relates to angular stability of the atom.

PARTICLE STRUCTURE AND FIELD INTERACTION

At this point the various datums on atomic particle structure must be integrated. These include the ring structure, spin-path, and relation of electric, magnetic and gravitational fields in matter and anti-matter.

The key to further depth in understanding particle structure is the field relations. These are the facts:

- 1) The electric and gravitational fields are both independent of each other and based on their wavelength spectrum.

- 2) Each force has its own transmission wave, the photon and neutrino, for the release and absorption of like energy.
- 3) The structure of the both the particle waves and the transmission waves is reliant on their relation to the magnetic force.
- 4) The cause of the dual particle wave/transmission wave structure is that the magnetic force represents different phenomena both inside and outside the atom, and within and without of a spin-path.

Within a spin-path, the magnetic force is the differential of the spin-path motion. That is, it represents the rate of change in the motion of the ring wave front. In this way it communicates the charge motion outside the spin-path.

Outside the spin-path, the magnetic field affects other spin-paths in this way by coaxing them to match the source spin-path.

Inside the atom, the magnetic force is a result of the interaction between positive and negative spin-paths.

Outside the atom, the magnetic force affects other atoms by coaxing them to orient to the magnetic orientation of the atom.

ATOMIC SHELL STRUCTURE AND INERTIAL BALANCE

The Pauli exclusion principle states that no two electrons can have the exact same quantum numbers. These quantum numbers interact to produce the stability inherent in atomic structure.

- 1) Principal quantum number. The frequency range of the shell. Given the size and energy of the electron, only certain frequencies are stable in a closed spin-path. This is what determines the frequency range of each shell.
- 2) Orbital quantum number. The angular momentum of the waveshape. Shell to shell the orbital waveshapes have been proven to be similar within subshells. The s sub-shell is always circular. The p sub-shell is always related to a figure eight. The d sub-shell looks like two p sub-shells combined, and the f sub-shell looks like two d sub-shells combined. The angular momentum comes in representing the force required to create the frequency multiples which result in these complex waveshapes.
- 3) Magnetic quantum number. The magnetic orientation of the spin. Apparently given the frequency and waveshape of an atomic particle, they are allowed spin-paths in opposite directions.
- 4) Spin quantum number. The angular momentum of the spin. This would be the angular momentum of the particle as a unit, rather than the instantaneous value of the spin path at any given instant.

Notice that there are two different quantum numbers representing angular momentum. One is for the spin-path, the other for the particle as a whole.

Within each shell, each orbital waveshape is allowed a combination of magnetic orientation and spin-paths that will produce a zero-sum angular momentum for the atomic structure and no more. And within each atom, the nuclear and electronic angular momenta are complementary forces which again add to zero between the two of them.

NEUTRON STRUCTURE AND ATOMIC STABILITY

we come to the structure of the neutron. If you really take a look at it, the neutron is a curious thing. It is composed of a proton and an electron, has the mass of both combined, yet its frequency puts it slightly below that of the proton as evidenced by its increased size. Further, given the known fact of electron shell structure and the implied fact of nuclear shell structure, where does the neutron fit in? There is no room for a neutron shell structure, and this half-breed particle fits in neither the electronic nor nuclear structures.

Taking this one step at a time, first, the frequency difference is easily explained by viewing the frequency spectrum. Consisting of a high and a low frequency motion, the average puts it just about where it's at. Graphing a chart of its motion, then translating this into a waveshape based on known electron equations gives the neutron spin, magnetic and angular momentum qualities of increased complexity.

Where would we be without the neutron? There would certainly be no complexity in atomic structure. Protons and electrons, and that's it. Is it possible the neutron is a manifestation of the necessity for magnetic stabilization of unbalanced angular momentum in larger atomic structures?

Looking into this further, it has been established that the phenomenon of radioactivity is caused when the instability of larger elements is released by neutron decay in the form of alpha and beta particles. The range of non-radioactive elements containing neutron extends from Helium through Radon. Above Radon, all of the elements possess high-energy electron shells which by themselves are responsible for unbalanced atomic forces sufficient to trigger the neutron decay which makes them radioactive.

But how are neutrons formed in the first place? There is one empirical fact to begin with. Neutrons are created and destroyed in radioactive decay. Neutrons emit electrons in beta decay, and are formed in orbital electron capture by protons. All in the name of atomic stability, and the basis for this stability is balanced angular momentum, and the forces of the angular momentum are carried by the atomic magnetic fields. Neutrons carry magnetic fields, as evidenced by the fact that neutron stars have been observed to carry incredibly dense magnetic fields.

Therefore, the fact that a neutron is made of a magnetically balanced proton and electron explains the phenomenon of atomic stability and radioactivity.

The final remaining question is, where do the neutrons reside? This follows from the above established facts. One, neutrons consist of a combined proton and electron spin, which fit in an energy-space only slightly larger than the proton. Two, neutrons are essential to balanced forces within the nucleus, and are affected by the nuclear-electronic balance of forces. Three, neutrons are stable only within nuclei

and alpha-particle structures. Actually, alpha particles are helium nuclei, but are different from all other nuclei in that they are emitted from other nuclei as radioactive decay, without electrons.

The third point is possibly the final clue. Why are alpha particles stable on their own? They must have a sufficiently balanced force structure to survive as a single unit ejected from an otherwise unstable nuclear force structure. It is obvious that the nuclear-electronic relationship is unbalanced, but it is also necessary that the internal nuclear structure is balanced.

Taking a look at alpha particle structure, we have two protons and two neutrons, or four protons and two electrons. In a conventional atomic situation, with twice as many protons as neutrons, how would the force structure balance out? The answer is, electron sharing.

NUCLEAR SHELL STRUCTURE

Let us construct an atomic model based on this theory of the neutron. To begin with, envision the atomic nucleus as having an identical structure to the electron shell structure of the atom. All the rules apply, especially the Pauli exclusion principle.

Now, because the nucleus is higher energy by a factor of at least three to nine orders of magnitude, unbalanced forces cause more havoc than their counterpart in the electron shell structure. In fact, the atom actually requires three sets of balanced forces to continue its existence. Internal nuclear balance, balance between the nucleus and electron structure and, as described by the Pauli exclusion principle as applied to the periodic table, electronic shell balance. Nuclear structure is concerned with the first two, and it is this interplay which necessitates the existence of the neutron.

An unbalanced nuclear force tends not only to increase the entropy within the nucleus itself, but extends this instability to the electron shell, resulting eventually in the breakdown of the entire atomic structure. However, before it reaches this point, harmonic vibrations within the unbalanced proton spin path (as a classical comparison, say in the form of precession) actually begin to duplicate the external electron spin path. A neutron is born.

At the same time, is a proton lost? The answer again lies in examination of the periodic table. Are there any atoms listed without protons, only neutrons and electrons? Absolutely not. Hence, nuclear electron sharing fills the gap, and when a proton becomes a neutron, another neutron becomes a proton. Is it really possible that there is this much instability within the nucleus, with particles changing state at gamma ray frequencies? At the moment, it cannot be proven that they do or they don't.

Nevertheless, in chemical bonding this occurs everywhere. If you view an unbonded elemental component of any molecule as an unstable particle, then common electron sharing reflects a change in state of the element through its electron bonds which are changing state at gamma ray frequencies.

Applying this to the table of chemical elements, we find an interesting thing. In all the elements, there are no more than two neutrons to each proton, and no less than one neutron to every two protons. Illustrating this point, we have Hydrogen-1,2,3 but no Hydrogen-4 because no isotope of Hydrogen has 3 neutrons. We have Helium-3,4,5,6 but not Helium-7. The list goes on. Possibly the reason for this is that the maximum nuclear electron sharing potential is among two neutrons and one proton, each neutron alternately changing state with the proton. Such a swap would not work with three neutrons.

ANGULAR MOMENTUM AND MAGNETIC FIELDS

Having established that the stability of atomic structure depends on the balance of angular momentum within the nuclear and electronic shells, the next challenge is to discover what communicates imbalance within respective areas of atomic structure. Let us explore the possibilities of the magnetic field.

There are three areas of magnetic field activity to examine. Internal particle magnetic fields, shell integral-sum magnetic fields, and nuclear-electronic interactive magnetic fields.

Internal particle fields. These are caused by the very existence of the closed spin-path. The magnetic field represents the rate of change of the electrical field, which is really the spin-path motion. The magnitude of the electric field remains constant, but as the path is circular, the direction is in constant flux. Hence at any one point of the spin path, there is a magnetic field vibration of the same wavelength as the particle.

Shell integral-sum fields. The magnetic fields of the individual particles add up to an integral sum of the shell structure. As many shell spin paths have complex motions, the sum of the magnetic field strengths would seem to be highly complex. However, in the case of filled shells the sum is most likely zero, simplifying the calculations to include only the outermost unfilled shell. Hence this sum represents the state of stability of the angular momentum of the shell structure.

Nuclear-electronic interactive magnetic fields. As these two shell structures undergo their dynamic internal activities, the integral-sum fields interact to form an overall effect of magnetic field influence of the atomic structure. This is what we see as the measurable magnetic field property of the atom.

Given these roles of magnetic field influence within the atom, it can be seen that there are three potential areas of imbalance within the atom. Internal electron shell imbalance, nuclear-electronic shell imbalance, and internal nuclear shell imbalance. In order to study this, the function of the electric field spin-paths as they relate to the generation of magnetic fields must be defined.

A COMPLETE ANALYSIS OF MAGNETIC FIELDS

The magnetic field is a very strange thing. So much seems to be known about it, yet all that is known is about its behavior in relation to electric fields, and nothing about its composition and not a clue as to its actual source. From where does a magnetic field issue forth, and what is it?

To explore this, we must pick up where current knowledge ends off. The most well-known fact about magnetic fields is that they are caused by changing electric fields, and that they ALWAYS lag a quarter wavelength (90 degrees) behind an electric field. This does not mean that it is oriented at right angles to the magnetic field, but that it lags behind in phase.

The most mathematically obvious fact about this that springs forward is that the magnetic field is the differential of the electric field. That is, it represents the rate of change. Is it possible that this is all it is? If so, that means the magnetic field is meant to be a communication medium of electric field flux, and that is from where it issues, and what it is.

MAGNETIC FIELDS: INTERNAL PARTICLE

Let us put this in the perspective of the particle wave characteristic. With the wave front of an atomic particle traveling with a circular motion at the speed of light, what equation of motion of the particle, when the differential calculus is applied, results in the equation of motion of the magnetic field?

Applying this to the principle stated above, it may appear that the electric field is not changing. Yet it is, as we have a circular motion producing a constantly changing vector. So, there are two ways to view this, from a fixed point with the electric field and magnetic field wave fronts moving, and as the moving wave front looking out at the magnetic field.

It is the latter viewpoint which may shed new light on this phenomenon. Is the magnetic field a static thing? Or is it also a moving wave front just as the electric field? The atomic wave front seems to be a solid particle because of its high frequency. It follows that the magnetic field is also not a static force, but a helix in motion, following the electric field wave front, just as in the moving EM wave. As far as its orientation, it is, in fact, completely askew to the electric field. If the electric field is moving in one direction, the magnetic field at any given instant is moving on a non-intersecting path in the two planes perpendicular.

At this point we must join photon field theory for a full explanation of the internal particle magnetic field.

The helix path of the electromagnetic wave is mostly for illustrative purposes of the relation between its electric and magnetic components. Only in the case of circularly polarized photons is there an actual helix path, and this is only because the electric field is rotating "left" or "right" due to the characteristic of the emitting device.

Most electromagnetic waves are plane polarized, that is, the electric field vibrates in one plane only. Or, at least it vibrates in such a way that detectors built to perceive the plane of vibration show it to cause a reaction in one plane. The magnetic field, lagging behind, also works in a single plane. But to explain how this occurs, we must have a model for what is vibrating and how it vibrates.

Electromagnetic waves, having no particular spin orientation, react alike in matter and antimatter. The only difference is in spontaneous emission of circularly polarized EM waves, being of opposite polarization in opposite cases. But neither do these waves exhibit qualities of either particular realm of matter or antimatter.

Nevertheless, whether we follow the corpuscular model or the wave packet model, the electromagnetic unit possesses energy and frequency. Its energy is in the form of a frequency of motion. This is easy to visualize in the case of a circular particle spin-path. In the case of the moving vibration, one must keep certain things in mind to avoid the trap of not making sense. One point is, the particle or wave does not appear and disappear. Where would it go? Another point is, the particle is the size of the wavelength, be it long wave radio band or high frequency gamma ray.

Our continual points of reference are as follows. That the vibration is caused by the circular motion of the wave, be it standing wave closed loop or travelling wave open vibration. That it consists only of energy and frequency.

Somehow this must all fit in to the scheme of plane polarized vibrations.

The next question is, why does the magnetic field always follow the same direction of circular path based on the direction of motion of the electric field spin-path? More on this later.

MAGNETIC FIELDS: INTERACTIVE

Another significant datum is that magnetic fields cause other magnetic fields to align, opposite poles attracting, so that all poles of one polarity point in one direction, with all poles of the opposite polarity pointing in the opposite direction.

How exactly does this motion work? Tracing the flux lines of a magnetic field, we find one path between disconnected magnetic objects going directly from one pole to another, and two paths within the magnetic object itself. One going direct and the other completing a circular path outside the object.

These paths represent direction followed by an external object aligning itself to the internal field. An object already lined up will directly connect to the other with its opposite pole. An object off to the side must follow the lines to orient itself into a position where it can connect up.

Where we are dealing with atomic particle spin-paths, these line up in the situation in which the vacant energy levels create a magnetic field due to non-zero-sum magnetic imbalances.

Where we are dealing with interatomic forces, these line up where such vacant energy levels are brought into zero-sum balance through joining their magnetic, and so electric, spin-paths.

The next question is, again, why does the magnetic field always follow the same direction of circular path based on the direction of motion of the electric field spin-path? More on this later.

THE BASIS FOR SPIN-PATH FIELD EQUATIONS

The three forces, electric, gravitic and magnetic, need field equations defined for them. Electric and magnetic would be very similar, with the major difference being in nuclear electron sharing as an added component. Magnetic is another story. The need to accurately define a magnetic field equation for the three areas of magnetic field activity causes the field equations for both to be inextricably intertwined, so to speak.

The ring model as a basis of the atomic spin-path has as its basis in reasoning the analysis of three conditions of existence. The sphere, ring and point models have in turn the basic reasoning that the wavelength and particle size are identical. Looking at these now from the viewpoint of angular momentum, we find possibly an even better reason for selecting the ring model as the most accurate. The ring model has the potential of balanced angular momentum in three dimensions, for imbalanced angular momentum in any combination of dimensions and last but not least, the capability for transferring its angular momentum as well.

The sphere and point models do not have these qualities. The sphere is homogenous and has no wave front, and so no potential for imbalanced angular momentum. The point has no basis for any motion it would take as it has no method for storage of angular momentum. At present its motion is badly explained. In the inter-particular force model, it is explained as coming from a mysterious force between

it and another particle, something like a rock on the end of a sling. But what about when electrons are on their own? They still have the same size and they still have to move in circles. But there is no slinger, in this case, to keep them going around. And neither is there any other explanation.

This leaves the ring model. But perhaps this model is too simple in its current form. Let us take this and see if we can turn this into a basis for some test field equations.

TEST FIELD EQUATION #1

The basic equation for the ring model would be that of a circle. There are three forms of the equation. One is simple, one is complex, and one is actually a null state.

In the simplest form, the axis of rotation would pass through the top and the bottom of the circle, the circle spinning with the maximum velocity at the points farthest from the axis, and with zero velocity at the two polar ends.

In its null form, the axis of rotation would be through the center of the circle, with the velocity of all points being constant. This is a null state because there is no wave front.

The only really useful and so the most complex form of the equation begins somewhere between the two equations above.

A UNIFIED FIELD EQUATION

The basic equation of motion for atomic standing wave particles is as follows. Begin with a circle. The circle will rotate in a circular motion, not with any of the points moving through the path of the circle itself, but based on an axis of rotation. Place this axis through the center of the circle, with the circle itself tilted at any angle between zero and ninety degrees. The circle now moves around this axis.

There is another component to the motion. Imagine instead of a circle, a torus. Now place the circle on the torus as follows. One point of the circle remains on the outside of the torus, and the opposite point remains on the inside of the torus. But this torus must be modified in a significant way from the usual donut shape. The inside surface of the torus must cross through the axis. This is called a *Spindle Torus* and in this case the spindle aspect would be maximized to where the inside and outside surfaces nearly meet. Now rotate the circle around the axis, maintaining the torus as a guideline.

This is the only possible motion, and there is one and only one reason for this pattern of motion. That is that in addition to the electric field created by the motion of the circle, the magnetic field is also created by its motion.

THE SOURCE OF THE MAGNETIC FIELD

The source of the magnetic field is the difference in potential of the circle created by the small precession-like movement of the circle across the inside of the torus and the outside of the torus. This difference creates a circular field which manifests itself in the form of the toroidal shape itself.

ELECTROMAGNETIC WAVE PATH DETERMINATION

In order to create electromagnetic waves that follow a desired path, both internally and externally, it must first be determined what causes those waves to follow their paths. The emission of electromagnetic waves and their propagation through space is the first place to look.

There are only two conditions under which electromagnetic waves are currently known to flow on a fixed path.

The first condition is collimated light, and even this light disperses, and even in a vacuum. This fact is associated tightly to the particle/wave nature of light, for which the answer lies in examining the relationship between the wavelength of the waves and the nature of the electromagnetic ether.

As a photon wave packet travels through a gas, it is easy to see why the light is dispersed. As it travels through a vacuum, however, the only thing there is to encounter, for the most part, is other electromagnetic waves. It can be seen that these too, cause dispersion by partly absorbing and scattering the energy waves, in the same way as waves on water.

The second condition is through a conductor. Here, the electromagnetic waves are pulled along a fixed path by electromotive force, cascading from one atomic electron orbit to another. The path of the waves is guided by the shape of the conductor. The waves themselves consist of electromagnetic waves emitted and absorbed as the charged electrons are accelerated and decelerated as they jump from atom to atom.

The determination of electromagnetic wave paths relates directly to the two end products of MNP, Antigravity and Antimatter, as in order to create these forces we must be able to control the emission and radiation of electromagnetic waves through their source, the charged particles.

STANDING WAVE INERTIA AND FORCE PROPAGATION

Accelerating a charged particle causes it to emit electromagnetic waves. This is a fact long proven in particle accelerators.

Throughout the universe gravity is a force, and a force which happens to accelerate charged particles. Therefore, the acceleration of charged particles by gravity must cause them to emit electromagnetic waves.

The acceleration of a particle can be compared to the acceleration of a gyroscope. A gyroscope is a spinning mass, and if a gyroscope is moved, it resists the motion because its spin is a motion in all directions at once, therefore any motion of the entire gyroscope must modify the motion of the spinning mass in all directions. This is the source of the resistance and stability the gyroscope manifests. This is the source of what we call inertia.

Therefore, any acceleration results in the release of electromagnetic energy, and the source of this energy can be traced back to the accelerating force. Following this logically through, when one particle is moved, it emits a force which pushes the next one, and so on. The total resistive gyroscopic force must be overcome for the mass of particles to move.

This can be explored to implement the dampening or entire cancellation of inertial effects within a field area, or even the simulation of gravity by enhancing this force artificially. It is possible that maximum efficiency of inertial excitement or "cooling" could be attained by releasing the energy in the same phase as the energy source, using nuclear neutron/proton electron wave sharing as the source of population inversion and spontaneous emission.

But I am jumping too far ahead here. The initial goal is simply to attain the controlled release of electromagnetic energy through the controlled acceleration of charged particles.

History of Atomic Research

A BRIEF HISTORY OF RESEARCH

Ancient Civilization

600 BC	Thales of Miletus	Amber and Fur charge force.
460 BC	Democritus	Postulated atoms.
	Aristotle	Invalidated Democritus' atoms.

19th Century

1800s	John Dalton	Proved the atomic idea by weighing compounds for atomic proportions.
1830s	Michael Faraday	Discovered ions via electrolysis thus proving atoms are held together by electrical forces.
1869	Mendeleev	Formed the periodic table
1896	Henri Becquerel	Discovered radioactivity.
1897	J.J. Thomson	Discovered the electron, formed the raisin-in-a-bun model

20th Century

1901	Max Planck	Discovered quanta of light (photons)
1905	Albert Einstein	Special Relativity
1911	C T R Wilson	Invents the Cloud Chamber
1911	Rutherford & Marsden	Found that atoms were mostly empty, formed the orbiting electron model
1912	Niels Bohr	Formulated precise electron orbits
1916	Albert Einstein	General Relativity
1919	Rutherford	Discovered the proton
1920s	Niels Bohr	Refined Bohr model using orbit shapes and tilts. Assigned Quantum numbers to these (n), (l), (m)
1924	Wolfgang Pauli	Added spin to quantum numbers (s) property
1924	Louis de Broglie	Took $E=mc^2$ and calculated electron wavelengths
1924	Wolfgang Pauli	Formed Pauli exclusion principle
1925	Werner Heisenberg	Matrix Mechanics
1926	Erwin Schrodinger	Calculated exact electron wavelengths that matched the Bohr particle orbits
1926	Max Born	Added element of chance to Schrodinger
1927	Werner Heisenberg	Formed Heisenberg uncertainty principle

1928	Paul Dirac	Formulated electron hole theory and postulates the positron
1931	Wolfgang Pauli	Postulated the neutrino
1932	James Chadwick	Discovered the neutron
1932	Carl David Anderson	Discovered Antimatter
1932	Werner Heisenberg	Postulated virtual photons
1932	Carl Anderson	Discovered the positron
1935	Hideki Yukawa	Postulated Mesons as nuclear glue
1937	Anderson/Neddermeyer	Muon discovered
1938	Otto Hahn	Discovered Nuclear Fission
1947	Powell/Occhialini/Lattes	Pion discovered
1948	Richard Feynman	Quantum Chromodynamics
1956	Cowan-Reines	Discovered the electron neutrino
1962	Brookhaven Labs	Discovered the muon neutrino
1974-95		Various particles observed in cloud chamber experiments
2000	DONUT	Tau Neutrino discovered

21st Century

2012	CERN	Higgs Boson observed
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APPLIED MICRONUCLEAR PHYSICS

Energy Production in the 21st Century

THE CHALLENGE

To end our dependence on fossil fuels a major breakthrough is needed. Alternate energy sources such as wind, water, solar, etc., are insufficient to power the world's growing energy needs. In fact, in "Hot Flat and Crowded", Thomas Friedman states we would have to build one nuclear reactor a day for the next 36 years just to meet the energy needs of the year 2050 (p.214). Obviously, this is impossible. So how can these growing needs be met?

THE PROBLEM

Science has no practical solution. There are only two methods of large-scale energy production that surpass the nuclear fission reactor and neither of these is anywhere near practical deployment.

One of these is the nuclear fusion reactor. To date, scientists have been unable to produce a sustained nuclear fusion reaction despite the many billions of dollars have been spent on these attempts. There are a dozen projects in progress aimed at this goal, none of which has any guarantee of success.

The other is matter-antimatter reactions. Anti-matter is not science fiction. In fact, it is one of the solutions NASA is seeking to power spacecraft. Per a NASA paper,

"One gram of antihydrogen (i.e., a "mirror" atom composed of an antiproton and positron (antielectron)) reacted with the same amount of normal hydrogen produces a total energy equivalent to that delivered by 23 Shuttle External Tanks".

At this time antimatter is produced on a regular basis in particle accelerators around the world, but only in nanogram (billionth of a gram) quantities, again at an impractical cost of many millions of dollars.

THE REASON

In spite of the altitude that scientists carry, meaning the respect given to "rocket scientists" and "nuclear physicists", the thousands of research papers and huge sums of money spent on R&D, scientists do not have a proven theory that describes the nature of matter and energy. In spite of the billions of dollars spent on particle accelerator research with the goal of proving the existing theories of matter and

energy, they remain unproven. Further, even if these theories although unproven were accurate we should have in our hands a solution to our energy crisis, but we do not.

Science needs a major breakthrough, and not just a successful experiment proving the existing theories, but a breakthrough that changes the paradigm.

The October 2008 Scientific American carried an article, "Q & A with Thomas L. Friedman, author of 'Hot, Flat and Crowded'". In answer to Steve Mirsky's question, "So what will we need to start changing the system" he answers, "Innovative breakthroughs that we just do not have right now. What we don't have in energy today is a real market that would encourage 100,000 Manhattan projects in 100,000 garages with 100,000 ideas."

THE TARGET

At the turn of the 20th century a great deal of progress was made in nuclear physics. Armed with little more than pencil and paper, scientists created a model of the atom that persists to this day. These were huge advances and resulted in the nuclear technologies of the 20th century, the Atomic Bomb and Fission Reactor.

The latter part of the 20th century was not as productive. Many theories were advanced, some backed by mathematics that takes years of study to understand, but these were and are just theories and many of them, in spite of the many years of education of their originators, have untenable foundations such as the requirement that we have 6 more dimensions in our universe.

One thing science has not given us is a complete model of the atomic nucleus. There are over 30 models of nuclear structure, none of which explains all of the phenomena that have been experimentally observed and measured over the past 80 years. We also do not have a *proven* model of how and why the atom stays together, nor what electrons and protons really are. Science has failed to establish any workable, practical model of how this works any more than it has cured cancer.

A good example of the magnitude of this omission is this. A hundred years ago scientists did not know what made the sun shine. The discoveries of the 1930's revealed that the sun runs on nuclear fusion. Yet even today, despite the many advancements and theories advanced, science still does not have a provable idea of how gravity works. Gravity, the one inescapable, ubiquitous force that affects every tiniest thing in the universe, and we have not a clue. We have Newton's laws that describe how things fall but not why. We have a hundred theories, the most famous of which is the General theory of Relativity advanced by Einstein. But even his theory, which states that mass "warps" space, whatever that means, is just a theory without any practical application.

CURRENT STATE OF ATOMIC THEORY

Nuclear theory in 2011 is generally in a state of unresolved contradiction. Scientists are split between several main theories each of which includes aspects of Particle Physics and Quantum Mechanics with General and Special Relativity both complicating any possible reconciliation.

On the one hand Particle Physics describes the measurable components of the atom – proton, neutron and electron – as particles composed of smaller theoretical particles called quarks. Their structure and relationship are described as being monitored by binding forces called weak and strong which are in

turn represented by more particles. The Standard Model of Particle Physics is incomplete as it requires confirmation that the Higgs Boson exists but it is not known if this will ever be achieved. The force of gravity has yet to be explained and actually this theory does not include it.

Quantum Mechanics describes these same subatomic particles as waves or wavelets. The wave-particle duality is another conundrum that has remained unresolved for nearly 100 years. Quantum theory also has many offshoots that attempt to reconcile it with Particle Physics such as Quantum Chromo dynamics, Quantum Electrodynamics, Quantum Gauge theory and others.

Further, many complicated theories have been advanced over the last few decades in an attempt to reconcile these theories with General and Special Relativity including "String Theory" and "Super symmetry", none of which in their turn are provable. In fact, where the atomic nucleus is concerned there are over 37 theories of how it is structured, each of which explains some of the observed phenomena but none of which explains all of the observed phenomena.

OCCAM'S RAZOR

"Pluralitas non est ponenda sine necessitate" or "plurality should not be posited without necessity." The words are those of the medieval English philosopher and Franciscan monk William of Ockham.

This speaks volumes about the state of atomic physics today. What is needed is a return to simplicity. The universe cannot be as complicated as today's theories are positing. String theories require up to 26 spatial dimensions. Dark Matter and Dark Energy require us to believe most of the matter and energy in the universe cannot be detected. The search for the Higgs Boson has ended up being run through a machine that cost over 4 billion dollars to build.

There has to be a simpler explanation. Many early developments in particle physics, quantum mechanics and relativity were accomplished for the cost of ink and paper. Billion-dollar laboratories were unheard of and in truth have not led to any simplification of these theories but have only led to further complexity.

Micronuclear Physics proposes a new method of large-scale energy production that once developed will be simple, inexpensive and practical.

THE FUTURE

This project is a high-risk, high-reward venture. If this theory is workable, there is no limit to the benefits that will be gained. There would be unlimited, cheap, safe energy for our future, not to mention the technological and commercial possibilities.

I do not have a degree in Physics, but all the scientists in the world have had no product either. Michael Faraday, the famous English scientist, had only an 8th grade education yet invented the electric motor. I have been studying physics since I was 17 and have put 25 years of research into this particular subject.

At the very least the electronic device that will be built represents a new technology that has no precedent, and the plan is for this project to be executed by a number of specialists that will be gathered together to maximize its potential.

Many people agree that Thomas L. Friedman's call for "100,000 Manhattan projects" is the only hope we have for saving our world from an energy catastrophe. This is one of those Manhattan projects.

Micronuclear Physics – the Solution

The goal of MicroNuclear Physics is to design and construct a subatomic field simulator that will generate a virtual antimatter field. This will be the central mechanism in a commercially viable energy production device that will produce safe, clean and plentiful energy.

Micronuclear Physics (MNP) is a set of theories that describe the nature of matter and energy at the level of the atomic nucleus. These theories build on over one hundred years of work by physicists from Niels Bohr to Richard Feynman including ongoing work by contemporary scientists.

Under development for over 25 years, the theories of MNP simply and thoroughly describe the exact structure of atomic particles – the proton, neutron and electron – and the forces that govern and are governed by their behavior. These particles are responsible for all matter and energy interactions in our universe. A workable theory of their structure will allow the creation and control of any and all forms of energy.

These theories agree with Quantum Wave theory which states that matter is condensed energy in the form of a standing wave. Quantum Wave theory was formulated in the 1920's by two physicists, Louis DeBroglie and Erwin Schrodinger and came out of research into the wave nature of light. DeBroglie's version of this theory included a mathematical model in use to this day which is called the "DeBroglie wave equation".

Science is still uncertain of exactly what light is. Technically light is the electromagnetic energy carried by photons, but photons exhibit behavior of both particle and wave and a complete explanation of how light can be both a particle and a wave is still unresolved. These two physicists applied this same test to electrons and found that they too could be made to exhibit the behavior of both particles and waves. This was the basic formulation of Quantum theory. Assuming that electrons are waves then protons and neutrons can also be demonstrated to be waves.

If this seems hard to understand then know that this subject is challenging not only to the layman but also to the scientists who are supposed to be experts in it. Both scientific articles and popular literature describe Quantum theory as mysterious and unexplainable. It is well known what experimental results show but not why. The leading scientific theories of today – Quantum Mechanics, Relativity, and Particle Physics – are not in agreement. Scientists seem to be unable to understand that you can have something made of pure motion. They insist there has to be a piece of solid matter. So modern Particle Physics insists that everything is a particle, even that an attractive force is caused by particles flying back and forth between two objects but with no explanation on how or why this occurs.

Quantum Wave theory was and is a workable truth but the theory has become obscured by false data. Although we still have the true data, it remains an embattled truth challenged by those who make it hard to understand by trying to mix this with theories of everything from probability to dimensions that don't exist. All of this is a distraction.

MicroNuclear Physics proposes to, through a small modification to the DeBroglie Wave equation, design and build a subatomic field simulator capable of replicating the field structures of atomic particles that will in turn allow the creation of a virtual antimatter field that will react with "normal" matter to produce an energy return in accordance with Einstein's equation, $e = mc^2$.

The DeBroglie Wave equation approximates the wave motion of atomic particles but this equation is too generalized. (Although saying a particle has wave motion is kind of an oxymoron, it is the only way to express this idea at this time.) MNP includes a more specific equation that demonstrates how this wave motion leads to the energy fields these "particle-waves" are responsible for in our universe. This is to say, specifically, how the wave motion of electrons and protons creates the electric field, gravity field and magnetic field. MNP includes a much more extensive theory about what goes on inside the atom.

As a practical matter to create a product from this theory I propose to create an electronic device to mimic the structure that is the exact internal wave motion of these atomic particles. They all have the same basic structure so only a single design is required. This device will exhibit on a large scale the exact same form and so should allow us to create the exact same energy. This device, although highly precise in its construction and operation, should take as little energy to run as any household electronic device. The design for this device is in my own mind and has been for several years. It is as complete as it can get without beginning actual construction.

If this device can mimic a particle of matter then it can mimic a particle of anti-matter because this is a simple adjustment in the pattern of wave motion. With total control over the process we should be able to get this "virtual" anti-matter we have created to interact with a particle of normal matter and create the matter/anti-matter reaction NASA mentions above. This will produce an energy output " 10^{10} times greater than oxygen-hydrogen combustion and 100 times more energetic than fission or fusion" (source –same NASA paper). Not only this, anti-matter is a safe source of energy because there is 100% conversion, there is no radioactive by-product, and it does not require radioactive elements.

Further, if we can mimic the wave motion responsible for the force of gravity, we should be able to control the force of gravity, nullified or reversed, as a by-product of this technology.

Even if this concept is half right, it will lead to the development of numerous spin-off technologies. The moment any kind of product is achieved with this, it will open the door to unlimited opportunity.

Micronuclear Physics and Nuclear Structure

The current state of Nuclear theory tolerates over 30 different models of Nuclear structure in *mainstream* physics that for the most part fall within 3 categories. The reason for so many models is that no single model is able to justify all of the nuclear phenomena that have been found in the past several decades of experimental measurements. Each model has its strength but none is strong in all areas.

The three major categories of Nuclear structure models have been defined by Nuclear Physicists, for lack of better terms, as gas (plasma), liquid and solid.

The plasma gas, or Independent Particle Models, define the nucleus as having a shell structure in a similar form to the electron shell structure. There is currently no way to directly view or verify this kind of structure in the nucleus as there is with the electron cloud. The Liquid Drop Models define the nucleus as a loosely bound collection of particles. The Lattice Models define the nucleus as a three-dimensional grid with nucleons positioned at fixed points throughout.

Together these models can be used to explain all nuclear phenomena but this leaves the question of how the nucleus is truly structured so that new phenomena can be extrapolated and other unknowns can be explored, such as the how high the limit is on super heavy elements.

Another factor missing is the nature of the nuclear binding force. Although this has been copiously measured for thousands of elements with various proton/neutron configurations, no conclusion has been reached on the nature of the force that binds them together.

Micronuclear Physics proposes to explain the phenomena of nuclear binding force and to bring about a unified theory of nuclear structure by combining the shell structure and lattice models with the MNP wave equation and a more thorough definition of nucleon structure and the role the structure of the neutron plays in nuclear binding energy.

NUCLEAR MODELING

There are a number of key questions to resolve in any improved nuclear model.

- What is the phase state of nuclear matter? Is it plasma, liquid, solid or something else?
- What is the nature of the nuclear force? There are two forces nuclear defined, strong and weak. The strong force binds the nucleus together but how this happens depends entirely on the true structure of the nucleus. The nature of these and the two non-nuclear forces, gravity and electromagnetism, need to be defined and if possible unified.
- What is the nature of the nucleons themselves, probability waves, point particles or objects?

- How should the Schrodinger wave equation be interpreted? This equation is used to define nuclear phenomena but is based on the wave nature of nucleons. Does this mean the liquid drop and lattice models are invalid?
- Are neutrons stable within the nuclei? Beta decay and reverse beta decay show a small instability but what is the nature of neutron behavior within the nucleus?
- How does a shell structure explain magic closure? It is easy enough to show that this works, but only an explanation of how this works will explain, why nuclear stability peaks at shell closure and how the nucleus is built up, particle by particle.

There are also a number of experimental statistical results to be explained.

- Nuclear radius. This increases almost linearly as number of nucleons increases.
- Binding energies by nuclear size.
- RMS Charge Radii.
- Alpha particle binding energy.
- Spin-orbit coupling.
- Binary fission fragmentation.
- Proton and neutron separation energies.
- Weizsacker semi-empirical mass formula.

NUCLEAR STRUCTURE

According to MNP the nature of Nuclear structure and Nuclear matter, that is Nucleons, are inextricably interrelated. The nature of the Nucleon is wholly and completely based on the question that it seems has never been posed, much less answered, and that is the nature of Charge. This in turn is based on a new interpretation of the DeBroglie wave equation.

MNP states that charge is fundamentally a component of the spin, because it is the spin that creates the magnetic field, and the magnetic field orientation depends on the charge. This implies that the neutron is a virtual particle composed of proton and electron as a stable structure within in the nucleus, not just as a decay product. There are several phenomena that back this model, including beta decay, reverse beta decay and the neutron charge profile.

Looking at how this might work reveals a few interesting statistics. Ignoring unstable isotopes:

1. There is no such thing as what we might call Neutronium (${}^0_0\text{N}^1$) or Helium 2 (${}^2_2\text{He}^2$). Aside from Hydrogen 1, you have to have a neutron with a proton or you don't have a nucleus. This implies the neutron is required for binding.

2. The Z:N ratio is always between 1 and 2. You can't have more than 2 neutrons for each proton. This implies a binding model that involves 2 or 3 particles at a time - always N+Z or N+Z+N.

MNP states that "nuclear force carrying" particles are not truly particles, but in fact are artifacts of phase transitions in the harmonic oscillator and that the "mysterious" binding force lies in the negative charge component of the neutron and figures into "spin-orbit coupling" and/or isospin layering.

If in fact the nature of nuclear binding lies in the Neutron charge profile, and the nature of the Nucleon is the standing wave, then this has several profound ramifications. It means that this negative charge shell could be responsible for the "Strong" force as directly coupling protons to neutrons. It means that

these interactions could manifest as the “Weak” force in emitting and absorbing this negative charge shell during periods of phase transition caused by transient nuclear destabilization. It means that this force may actually be “Electromagnetic” in nature. Extrapolating this model can also lead to an explanation of the force of “Gravity”.

Electron waves are known to occupy a specific shell structure. The wave patterns and organization of this structure are well known and defined under the Pauli exclusion principle. Nuclei are also theorized to occupy a specific shell structure; however, this remains completely unverified. The nature of this shell structure is also intimately tied to the nature of nuclear matter.

THE NUCLEON

In creating a unified definition for the nucleon, we will first and foremost set aside the concept of the nucleon as a solid particle either spherical, orbiting a central potential well or otherwise structured. Instead we will define the nucleon as a standing “harmonic oscillator” wave, as defined by the DeBroglie wave equation, with three and only three properties.

The first property is that of motion. This postulates that the nucleon is composed of motion and only of motion. What is moving is “immaterial”. It may be called electromagnetic energy, or it may not, but in turn what that is or is not is not relevant. Because this lives in a quantum world it either is or it isn’t; there is no in between. This motion occurs at or near the speed of light and is constant. This motion defines its fundamental existence.

The second property is that of waveshape. More specifically the nucleon takes the form of a wave front that traces out a path that can be called the waveshape, orbital or Bessel function. In its simplest form in terms of the harmonic oscillator, $E_0 = \frac{1}{2} \hbar \omega_0$, this takes the form of a nearly circular ring with a leading and trailing edge, the leading edge being one half of the ring and the trailing edge the other half. The waveshape defines its energy level.

The third property is that of density curve. Just as the nucleon has a waveshape that defines the curve of its motion along the wave front, it also has a density curve along the wave front. This gives attributes to the nucleon that manifest as charge and magnetism.

It is the wave front density curve combined with the magnetic field orientation (parity) that differentiates the identity of the particle whether proton, electron, anti-proton or anti-electron (positron).

Nucleon Differential		Parity	
		Right	Left
Density Curve	Leading	Proton	Electron
	Trailing	Positron, Neutron	Antiproton, Antineutron

THE NEUTRON CHARGE PROFILE

This profile was identified in 1961 as showing that the neutron has a charge density magnitude that, moving out from the center, first spikes positive and then dips negative and trails to zero at the edge of the particle. This profile combined with the phenomena of beta decay and reverse beta decay imply that there may be a proton at the center and electron on the outside, but it requires justification of how this

may be possible. If the Neutron is to be considered a composite particle then the most central question is not whether or not a neutron “contains” an electron, but rather what the nature is of the negatively charged entity that it does contain.

A neutron as composite particle now requires that two particles occupy the same quantum space and share the properties of spin, magnetic field orientation and size, yet maintain their separate charges. The addition of the Density Curve as a sixth quantum number allows these entities to share the same quantum space. Equivalent Parity allows the positive and negative entities to coexist in the same “isospin” layer.

A neutron as composite particle also requires a balance of positive and negative charge. There is only a slight mass difference between the proton and neutron, 1.293 MeV. This accounts for only a thousandth the mass of the nucleon, yet the entity represented by this mass somehow balances the positive charge at the neutron core. This mass difference more than accounts for the presence of a negatively charged entity when the mass of the electron, 0.511 MeV, is considered. Clearly this entity has more mass than an ordinary electron, but is within the same order of magnitude as the electron.

A neutron as composite particle further requires the resolution of how beta decay and reverse beta decay can absorb or emit an electron or positron. If the size of the electron is proportional to the wavelength of the shell it occupies, then the electron wavelength is much larger than the nucleon. It is interesting that the order of magnitude of the difference in the size of the nucleus and the size of the electron shell is the same as the order of magnitude of the difference in the mass of the proton and the mass of the neutron. This implies that a change in one may well translate to a change in the other.

I.e. if we postulate that the wave front moves at a constant velocity v , and measure the wavelength and frequency of the electron by size of orbital and of the nucleon by known dimensions, then the electron frequency f_e is proportional to proton frequency f_p to the ratio of 1:1000 just as the difference in the nucleon frequency of $f_n - f_p$ to f_p is at the ratio of 1:1000.

PROTON-ELECTRON CARRIER WAVE THEORY

This theory states that the neutron is not a true particle but a composite particle, in that just as a 100 MHz FM radio signal carries 20 KHz information, so does a proton wave carry the electron wave in the nucleus. This results in a slightly larger measurement for the “neutron” particle size, weight and radius and for the neutral charge of the particle. This structure is called a “nuclear electron”.

NUCLEAR ELECTRON PERIODIC TABLE OF THE ELEMENTS

Because of this it is necessary to reconfigure the nuclear structure of elements above simple Hydrogen. For example, the Helium nucleus is no longer structured with 2 protons and 2 neutrons, but with 4 protons 2 of which carry a nuclear electron at any one time. It is possible these nuclear electrons are responsible for a shell structure where they are shared between protons as the nuclear binding force.

A chart has been tentatively created that groups nucleons into N+Z pairs and N+Z+N triplets. This chart was created by a computer program designed to combine “nuclear electrons” in two configurations, mapping the combinations of ZN against ZNN.

A portion of this chart is shown here. Stable elements are in black, unstable elements in red. Thin red lines connect isotopes of each element. With the exception of Hydrogen and Helium 3 (elements that

have not yet built up to the “first” alpha particle that may form the theoretical Nuclear Potential Well) every isotope of every element fits into its own box and no box has more than 1 isotope.

Attributes of this chart are subject to further analysis to see how much practical application it may manifest. Interestingly, the elements line up by isotope. Another feature is that beta decay can be mapped as a fixed x-y transformation. It is not known if this chart can help to explain why some combinations are unstable and/or radioactive.

At the higher end, elements cross the 1:1 zn:znn ratio line in increasing numbers starting with Xe₁₃₆ and moving the furthest out with the Actinide series, but then come back across starting with Element 105 as if moving back towards the theoretical island of stability.

Micronuclear Physics Periodic Table of the Elements by Nuclear Electron Configuration

znn	0	1	2	3	4	5	6							
zn														
0		H ₃ ¹	Helium	Lithium	Beryllium	Boron	Carbon							
1	*H _{1,2} ¹	He ₅ ²												
2	*He _{3,4} ²	Li ₇ ³	Be ₁₀ ⁴			7	8	9	10	11	12			
3	Li ₆ ³	Be ₉ ⁴												
4	*Be ₇ ⁴	B ₁₁ ⁵	C ₁₄ ⁶											
5	B ₁₀ ⁵	C ₁₃ ⁶												
6	C ₁₂ ⁶	N ₁₅ ⁷	O ₁₈ ⁸											
7	N ₁₄ ⁷	O ₁₇ ⁸												
8	O ₁₆ ⁸	F ₁₉ ⁹	Ne ₂₂ ¹⁰											
9	F ₁₈ ⁹	Ne ₂₁ ¹⁰	Na ₂₄ ¹¹	Mg ₂₇ ¹²	Mg ₂₈ ¹²									
10	Ne ₂₀ ¹⁰	Na ₂₃ ¹¹	Mg ₂₆ ¹²		Si ₃₂ ¹⁴			S ₃₃ ¹⁶		Ar ₄₄ ¹⁸				

NUCLEAR FORCES

There has been much speculation and little confirmation about how the influence of atomic particles affect each other both inside the atom and at a distance. Nucleons bind to nucleons. Electrons bind to the nucleus and coexist in shared shell space. Atoms bind to atoms. Gravity binds mass together at a distance of megaparsecs.

There is no doubt that within the atom particles of opposite “charge” attract based on achieving a zero sum of angular momentum by synchronizing their spin orientations. This seems a natural process based on the principle that excess momentum within the system will be used to either capture balancing particles or to expel out of balance particles until the system achieves a zero sum at which point there is no energy left to affect a change.

In any atomic system, balanced or unbalanced, there are four energy exchanges.

- Nucleon to nucleon, internal. This has been called the strong force and has been discussed above as most likely effected by the negative component of the neutron charge profile.
- Nucleon to electron, internal. This force has not been clearly identified. MNP states that this force is the result of electromagnetic induction. That in turn is effected by the sixth quantum property described above as the Nucleon Charge Density Curve.

- Electron to electron, internal or external. Electron shell interaction is the force behind the chemical reactions that bind atoms, which extend into the shells themselves. Because inter-atomic binding is also the result of the zero-sum angular momentum principle, this force is another aspect of the nucleon to electron electromagnetic force. However, this force is not responsible for the binding energy that holds mass together which we call gravity.
- Nucleon to nucleon, external. Because electron shell interactions are not responsible for mass attraction this leaves only one other candidate. By the process of elimination nucleons must be the originators and receivers of gravitational forces. This is also caused by electromagnetic induction but because of the difference in order of magnitude between the nucleon and electron this is a separate and specific manifestation of the Nucleon Charge Density Curve.

The Neutrino

This particle has been the subject of much expensive and some of the most highly technical research machinery ever built. First theorized long before it was detected, this particle is the most difficult to detect and verify. Only the highest energy neutrinos have been detected, having been produced by nuclear reactions within the sun, from faraway supernovas, or nearby nuclear power plants.

The classic neutrino producing reactions are beta decay and reverse beta decay where a neutrino is emitted to expel the energy differential between the neutron and its proton-electron composition.

Although neutrinos are expelled in literally countless numbers from any star, according to current science it seems that once expelled they have little or no role in the physical laws that govern our universe. Yet it hardly makes sense that such a ubiquitous phenomenon would serve no purpose. It is simply not known and, with current technology, cannot be proven or disproven whether or not neutrinos have any specific role in our universe aside from carrying excess nuclear energy.

Regardless, a couple of observations may be made that may at least open the possibility of neutrino as nucleon to nucleon force carrier.

- Only the highest energy neutrinos are detectable by modern science. Out of trillions and trillions of these, only a handful are detected even so.
- There are only two stable particles in our universe that transmit energy, the photon and neutrino. The photon is infinitely stable and is the electron-electron force carrier. The neutrino is also infinitely stable. There is no other candidate for nucleon-nucleon force carrier and there is no other theory to explain gravitational attraction that involves a known particle.

Aside from this argument it actually does not matter to MNP whether or not the neutrino functions as the gravitational force carrier because MNP already describes the function of gravitational force through the equations that detail the Nucleon Charge Density Curve and its electromagnetic manifestation. The statement that neutrino acts as nucleon force carrier is only meant to complete this unique model of nuclear structure.

The Micronuclear Physics Field Equation

The MNP field equation was developed to describe the structure of atomic particles.

Quantum Mechanics states that particles are waves but gives only the most general description of their motion. The original equation designed to describe the wave nature of atomic particles, specifically the electron, was developed by Louis DeBroglie in 1924, has not changed since, and remains one of the most important equations in the field. The purpose of this equation was to describe an atomic particle as a standing wave or “harmonic oscillator”.

The harmonic oscillator component of the equation follows this form: $\Psi(x,y,z,t) = \sum_n A_n \Phi_n(x,y,z,t) e^{-i2\pi\nu_n t}$

For all its complexity, all it really describes is a series of harmonic sine waves. It does not attempt to explain how this structure creates the forces, both microscopic and macroscopic, that occur in our universe. On the other hand, the theories of Particle Physics name a wide array of particles responsible for transmitting these forces but these do *not* explain how a flurry of particles flying back and forth results in their obvious effects.

These forces include:

- Internal forces that bind atomic particles inside of atoms, currently referred to as the “Strong”, “Weak” and electromagnetic forces
- Photonic energy transmission between electron shells in the form of electromagnetic waves
- Gravitic energy transmission, whose nature is currently unknown
- Electric force
- Magnetic force

The MNP wave equation was not developed only to express these forces mathematically but also to facilitate the construction of a device capable of emulating the fields that are the source of these forces so that these forces can be created and manipulated with the goal of energy production and direction. It is with this goal in mind that the derivation of the equation will be defined.

Derivation of the Micronuclear Physics Wave Equation

MNP redefines the quantum wave equation by describing a highly specific path for the “particle” wave front. The equation will be presented in its simplest form by deriving it in four steps. The first step is to plot the basic equation of wave front motion.

MNP WAVE EQUATION (1)

- $X = \sin(2\pi t) \cos(\pi z/2)$
- $Y = \cos(2\pi t) \cos(\pi z/2)$
- Where Θ is the bias angle and $1 > z > -1$

This equation defines a circular wave front sweeping in a circular motion that can be simply described as a ring spinning on a fixed axis. This ring has neither content nor composition and may be no more than “pure motion”. Exactly what is moving may be beyond our knowledge. Perhaps it is electric energy or electromagnetic energy, whatever that may be in turn. What is important is only that it moves, that it moves at constant speed of which the current assumption is the speed of light, and that its motion will never slow nor cease.

MNP WAVE EQUATION (2)

- $X = \sin(2\pi t) \cos(\pi z/2) + z \cos(2\pi t) \sin(\Theta)$
- $Y = \cos(2\pi t) \cos(\pi z/2) + z \cos(2\pi t) \sin(\Theta)$
- Where Θ is the bias angle and $1 > z > -1$

The second step adds the factors on the right. These modify the path of the spinning ring by displacing the spin so that the motion does not pass through the axis but is displaced by the bias angle Θ . In the next steps factors are added to the equation as limits to express infinitesimal change. This could also be done in this case, but in practice a macroscopic change will most likely produce a more profound effect.

Philosophically this component is required so that the ring does not pass directly through the axis. Because the wave is defined as “pure motion” a point of “zero motion” at the axis becomes a point of non-existence and the wave degenerates. Note that this may be a cause of photon and neutrino emission.

MNP WAVE EQUATION (3)

The next few steps in deriving the wave equation define several differentials using limits to describe the modifications to the DeBroglie wave equation . To derive these, we must assign attributes to the spinning ring of leading edge and trailing edge. For purposes of clarity we will state the leading edge is the half of the ring where the “top” of the edge advances and the trailing edge is the half of the ring where the “bottom” of the edge advances.

The step assigns another bias where the leading edge has a slightly larger radius than the trailing edge. In this equation r is the radius and ψ is the angle of each point of the ring to the axis. In this differential

the factor should be positive for the leading edge and negative for the trailing edge. The derivation should begin with a limit where the difference approaches zero as an infinitesimal at the poles.

- $\lim \psi \rightarrow 0 = a \sin(\psi)$
- $dr/d\psi = a \sin \psi$

MNP WAVE EQUATION (4)

The fourth step in deriving the wave equation is to define a differential where the charge q of the leading edge varies by ψ . However to obtain a more profound result in practice the magnitude of the charge should be macroscopic with as high a value as possible at the equator and zero at the poles.

- $\lim \psi \rightarrow 0 = a \sin(\psi)$
- $dq/d\psi = a \sin \psi$

MNP WAVE EQUATION (5)

This is not an additional component but a note that the velocity of each point on the ring varies by its position. The maximum velocity is postulated at the speed of light, and the minimum has a limit of zero but in practicality would be a significant fraction of c .

- $\lim \psi \rightarrow 0 = c \sin(\psi)$
- $v = c \sin \psi$ (per equation 1)
- $v = c (\sin \psi) (\cos \psi) (\cos \Theta)$ (per equation 2)

MNP WAVE INVERSION (A)

The structural difference between particles and antiparticles is that the magnetic fields maintain the same orientation while the electric fields are reversed. This is the source of the total annihilation that occurs when combined. The spins sum to zero while releasing their full force of motion.

The first inversion maintains the same wave equation while reversing the direction of motion. Mathematically this can be done by reversing the sign of the time variable. This phenomenon has in the past led to mistaken speculations that antimatter moves backward in time. In practicality it is a simple reversal of the direction of motion.

- $t' = -t$

MNP WAVE INVERSION (B)

The second inversion would flip the ring to invert the relation of leading and trailing edge by changing the sign of the right-side factor.

- $X = \sin(2\pi t) \cos(\pi z/2) - z \cos(2\pi t) \sin(\Theta)$
- $Y = \cos(2\pi t) \cos(\pi z/2) - z \cos(2\pi t) \sin(\Theta)$

Resulting Force Equations

By deriving various differentials, the action of all universal forces should be deduced from the MNP Wave equation.

STRONG, WEAK AND GRAVITATIONAL FORCE

MNP disagrees that particles are responsible for the forces that hold nuclei together. MNP maintains the position that these forces are the result of two factors. Intranuclear bonds, also known as the strong force, are the result of the negative charge that appears on the exterior of the neutron per its charge density profile. Interatomic bonding, also known as the weak force, is the result of electromagnetic induction. This force is described by adding another differential. This differential is expressed by removing the z axis restriction of the original equation and adding this factor to the entire equation. This force applies only along the z axis.

Taking the MNP wave equation as $f(x,y)$ we add an equation for force F where this force represents the affinity of particle waves to combine when spin direction and wave front spin path are identical. This is a modification of the equation for the attraction of charged particles, $F = kq_1q_2/r^2$.

- $F = f(x,y)_1 f(x,y)_2 / z^2$

ELECTROMAGNETIC ENERGY TRANSMISSION

There is a difference between the electromagnetic inductive energy described as the source of “weak” interatomic bonding which is the result of sympathetic motion, and photonic electromagnetic energy transmission. The photon carries quanta of electromagnetic energy from one electron wave to another over a distance and is an independent wave packet that is emitted and absorbed. Its motion and action have been well described.

GRAVITIC ENERGY TRANSMISSION

Electromagnetic inductive energy comes in two versions of the same substance. One geared for electronic frequency and wavelength, the other for nuclear frequency and wavelength. The photon carries the electronic spectrum and a “low-energy neutrino” carries the nuclear spectrum. The spectral relationship between observed neutrinos and low-energy neutrinos can be likened to the relationship between gamma rays and visible light. Otherwise its motion and action are identical to the photon.

THE NUCLEAR FORCE DIFFERENTIAL

The MNP modifications to the harmonic oscillator wave equation result in a differential motion that is responsible for the strong, weak and gravitational forces. The goal of MNP is to harness the energy gain that can be manifested out of the reaction this can produce with elementary particles.

- $z = x/(\sin(2\pi t) \cos(\pi/2) + \cos(2\pi t) \sin(\Theta))$
- $z = y/(\cos(2\pi t) \cos(\pi z/2) + \cos(2\pi t) \sin(\Theta))$

- $dz/dt = x/ (-\cos(2\pi t) \sin(\pi/2) - \sin(2\pi t)\cos(\Theta))$
- $dz/dt = y/ (\sin(2\pi t) \sin(\pi/2) - \sin(2\pi t)\cos(\Theta))$

NUCLEAR MODELING

Key problems of resolving the many nuclear models can be addressed by applying this new model to experimental measurements such as charge radius and binding energy, and to attributes based on empirical models such as shell closure and alpha clusters.

Applied Micronuclear Physics

Appendix A

Mathematical Modeling

MicroNuclear Physics Modified Wave Function

1. Original polar coordinate equation
2. Basic wave function
 - a. Basic wave function, plot for $t=0$
 - b. Basic wave function, plot for all t
3. Offset component of basic wave function
4. Modified wave function
 - a. Modified wave function, plot for $t=0$
 - b. Modified wave function, plot for all t

MICRONUCLEAR PHYSICS MODIFIED WAVE FUNCTION

Step 1

Create polar coordinate version of modified wave function ψ

Equations

$$X = -\cos(\theta) \sin(t) + \sin(\Phi) \sin(\theta) \cos(t)$$

$$Y = \cos(\theta) \cos(t) + \sin(\Phi) \sin(\theta) \sin(t)$$

$$Z = \cos(\Phi) \sin(\theta)$$

Plot

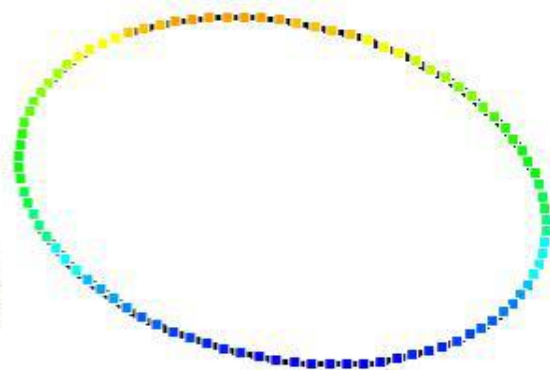
3 dimensions, surface plot for $\Phi = \pi/4$, $\theta = [0, 2\pi]$, $t=0$

Result

(Full motion representation available for all t)

MNP Ring Model

$$\begin{aligned} x &= r (\sin\phi \sin\theta \cos t - \cos\theta \sin t) \\ y &= r (\sin\phi \sin\theta \sin t + \cos\theta \cos t) \\ z &= r (\cos\phi \sin\theta) \end{aligned}$$



MICRONUCLEAR PHYSICS MODIFIED WAVE FUNCTIONStep 2a

Illustrate basic wave function ψ

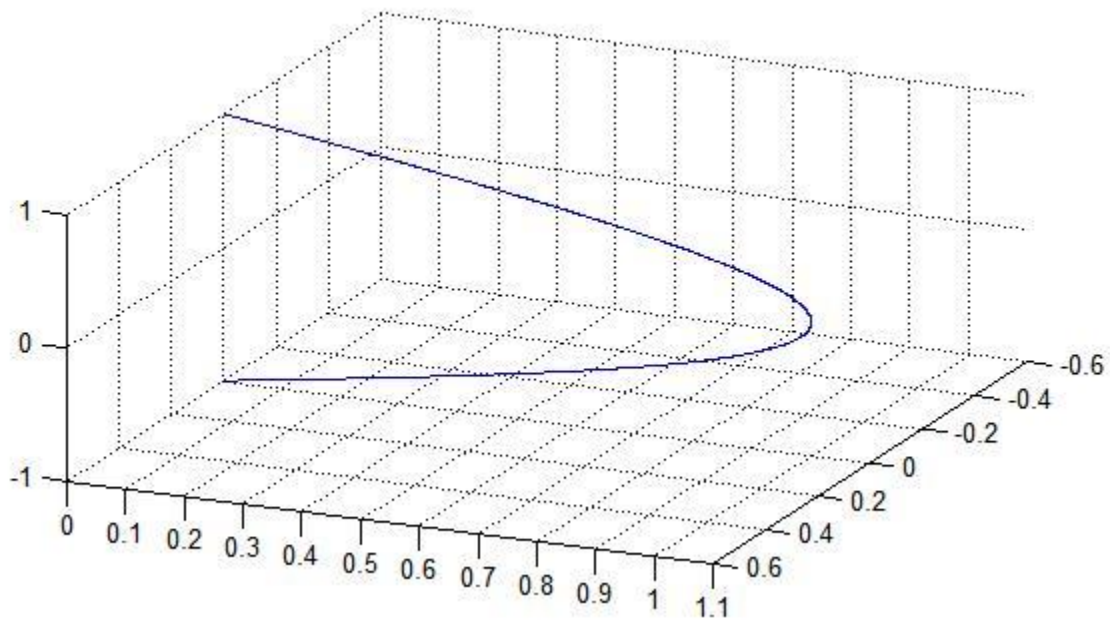
Equations

$$X = -\cos(z) \sin(t)$$

$$Y = \cos(z) \cos(t)$$

Plot

3 dimensions, surface plot for $t=0$



MICRONUCLEAR PHYSICS MODIFIED WAVE FUNCTIONStep 2b

Illustrate basic wave function ψ full wave cycle

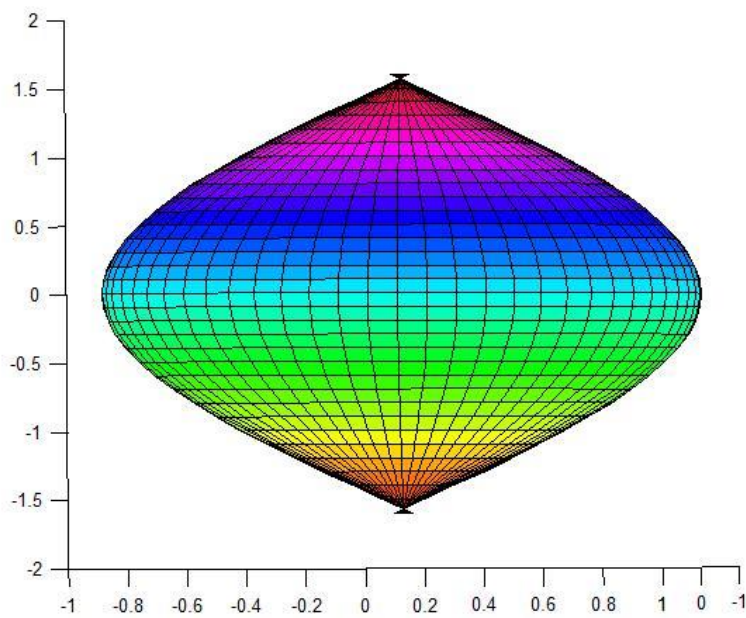
Equations

$$X = -\cos(z) \sin(t)$$

$$Y = \cos(z) \cos(t)$$

Plot

3 dimensions, surface plot for $z = [-\pi/2, \pi/2]$, all values of t



MICRONUCLEAR PHYSICS MODIFIED WAVE FUNCTION

Step 3

Show offset component of wave function ψ

Equations

$$X = \sin(\theta) \sin(z) \cos(t)$$

$$Y = \sin(\theta) \sin(z) \sin(t)$$

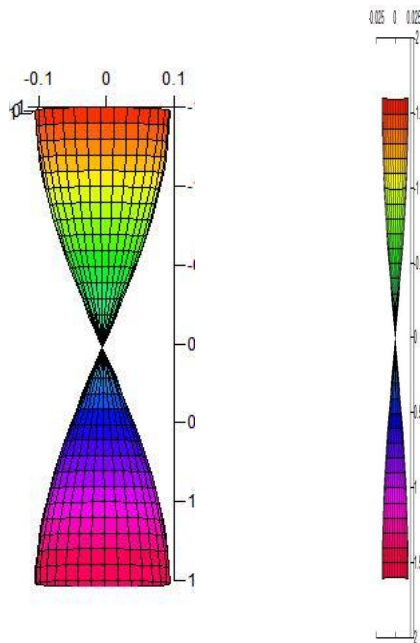
Plot

3 dimensions, surface plot for $t = [1, 2\pi]$, $\sin(\theta) = c$, $z = [-\pi/2, \pi/2]$

Result

Full wave for 1 cycle, at $\sin(\theta) = .1$, $\sin(\theta) = .0175$

Actual value = $\lim \sin(\theta)$ as $\theta \rightarrow 0$



MICRONUCLEAR PHYSICS MODIFIED WAVE FUNCTIONStep 4

Modify wave function ψ to illustrate waveshape

Equations

$$X = -\cos(z) \sin(t) + \sin(\theta) \sin(z) \cos(t)$$

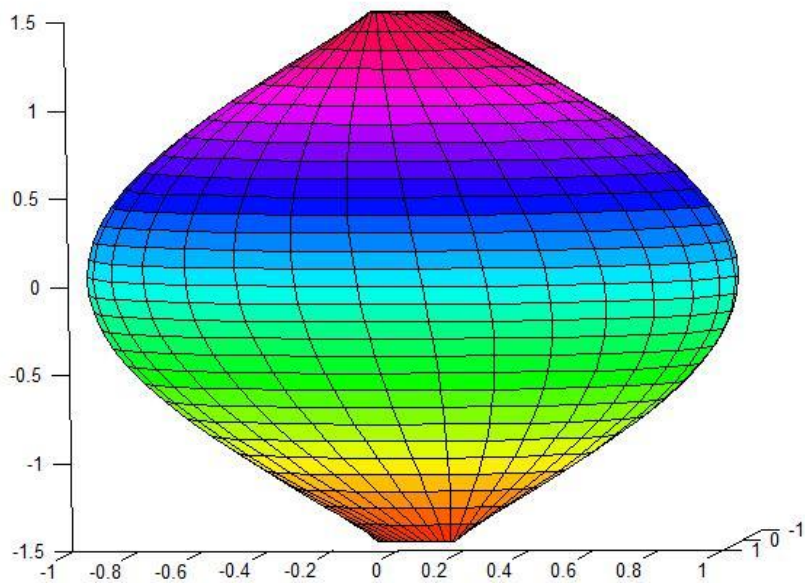
$$Y = \cos(z) \sin(t) + \sin(\theta) \sin(z) \sin(t)$$

Plot

3 dimensions, surface plot for $t=[1,2\pi]$, $\sin(\theta)=.1$, $z=[-\pi/2, \pi/2]$

Result

Full wave for 1 cycle



MICRONUCLEAR PHYSICS MODIFIED WAVE FUNCTION

Step 4b

Modify wave function ψ to illustrate waveshape

Equations

$$X = -\cos(z) \sin(t) + \sin(\theta) \sin(z) \cos(t)$$

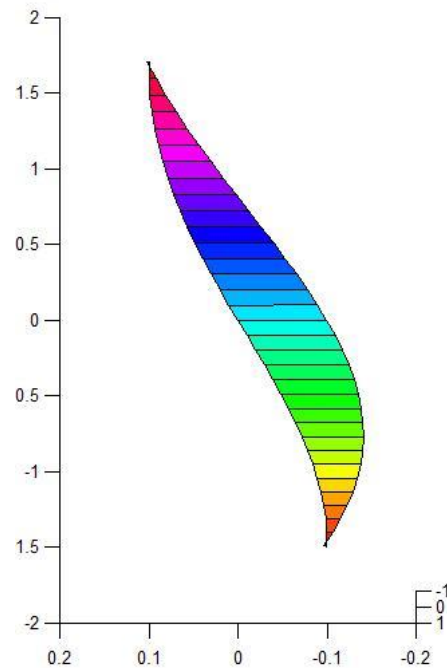
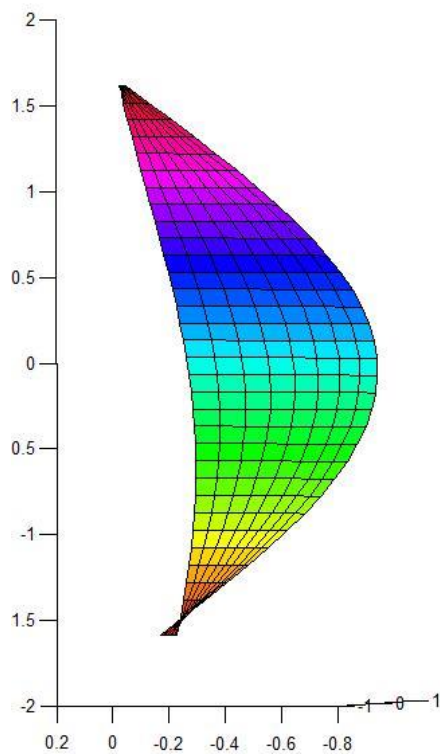
$$Y = \cos(z) \sin(t) + \sin(\theta) \sin(z) \sin(t)$$

Plot

3 dimensions, surface plot for $t=[0, \pi/n]$, $\sin(\theta)=.1$, $z=[-\pi/2, \pi/2]$

Result

One eighth wave cycle, $1/32^{\text{nd}}$ wave cycle



Applied Micronuclear Physics

Appendix B

Field Simulator Design

Integrated Function Diagram

Modular Function Diagram

Command and Response

Completed Concept

Prototype Specifications

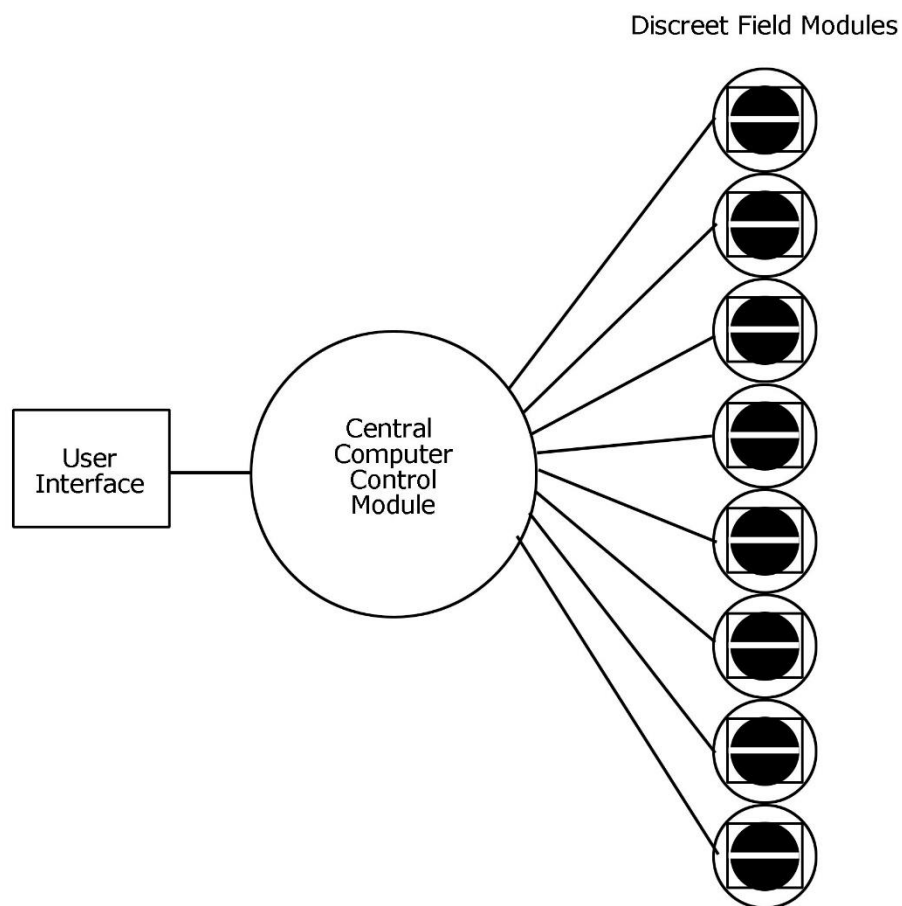
Field Simulator Design

INTEGRATED FUNCTION DIAGRAM

This diagram illustrates the highest level of the field simulator.

The Field Simulator is composed of a matrix of Discreet Field Modules controlled by a Central Computer Control Module. The purpose of the Discreet Field Module matrix is to create a high frequency rotating magnetic field as a three-dimensional torus in the gigahertz range. Problems inherent in high frequency circuit design are overcome by splitting the field generating units into discreet electromagnetic circuits that fire in a synchronous cascade.

The Central Computer Control Module must be capable of handling up to 1024 Discreet Field Modules to be arranged both inside and outside the surface of the sphere. See the Modular Function Diagram for detail of the Discreet Field Module.

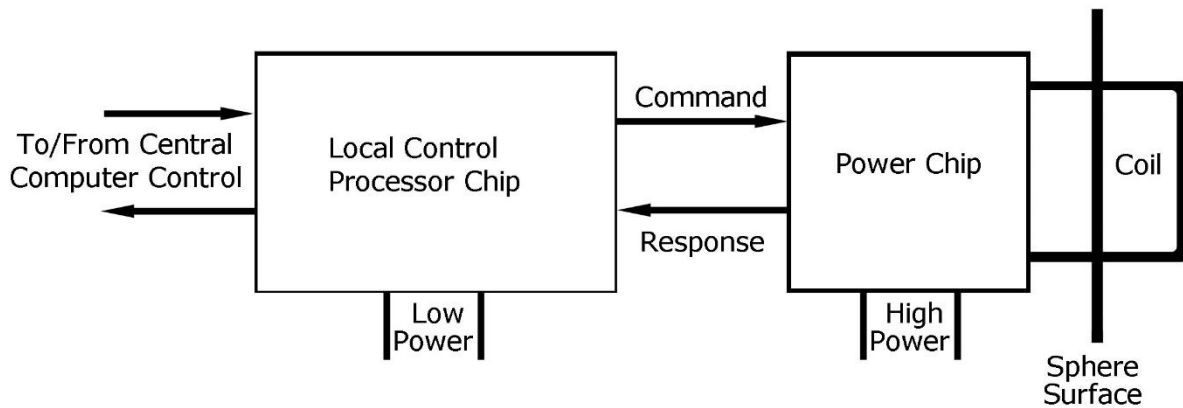


MODULAR FUNCTION DIAGRAM

This diagram illustrates the functional relationship of the components of the Discreet Field Module. This element is the key component of the Field Simulator. Its purpose is to create a series of electrical pulses of specified voltage, current and duration at the given frequency as directed by the Central Computer Control. These pulses are passed through the Coil that resides on the surface of the sphere.

In this circuit, the Local Control Processor is responsible for timing and control of the Power Chip and maintaining synchronization with the Central Computer Control. The Power Chip is responsible for regulating power pulses through the Coil.

The purpose of the Local Control Processor is to circumvent high frequency signal problems such as Cable Length and Inductance. Because of this, timing synchronization between the Local Control and Central Control is critical.



COMMAND AND RESPONSE

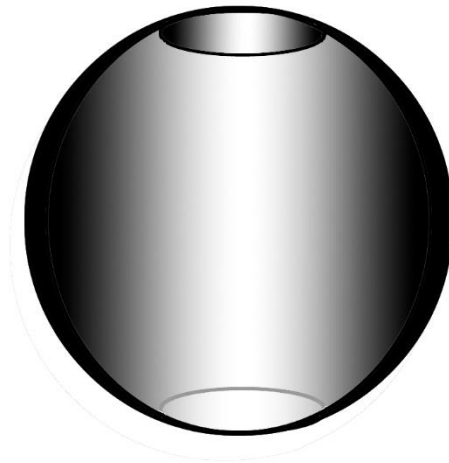
<p><i>Local Control Processor to Power Chip and Central Control to Local Control</i></p> <ul style="list-style-type: none"> • Set voltage level • Set amperage level • Set pulse duration • Set pulse frequency • Set start time • Set end time • Generate pulse • Timing synchronization 	<p><i>Power Chip to Local Control Processor And Local Control to Central Control</i></p> <ul style="list-style-type: none"> • Acknowledge command • Pulse generated • Timing response • Power fault • Timing fault
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COMPLETED CONCEPT

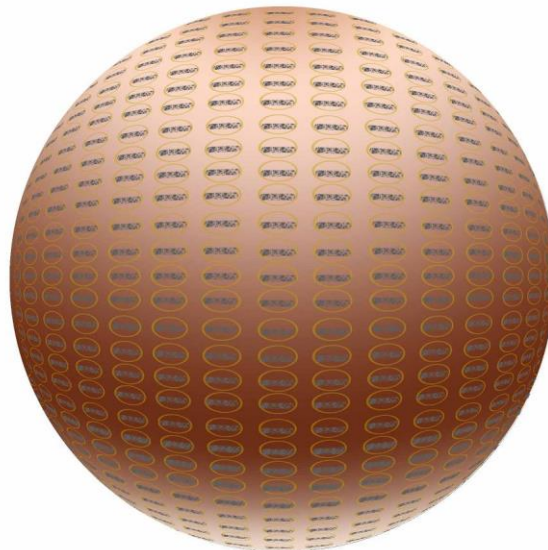
The completed mechanism will have the shape of an “arc-ring” spherical on the outside with the polar areas cut away. The shell will be thickest at the equator forming a second ellipsoid surface on the inside.

Both the outside and inside will be covered with a matrix of Discreet Field Modules. The shell will be composed of an electrically insulating material to shield the control circuitry which will be housed inside the shell itself. Only the magnetic field coils will protrude onto the shell surface.

Cutaway Prototype Model



Finished Prototype Model



PROTOTYPE SPECIFICATIONS

Field Simulator

- Radius: 15 cm
- Variable voltage and current input

Power Chip

- Voltage: -200 VDC to 200 VDC
- Amperage: 0-20 Amps
- Pulse frequency: 1 to 10^9 cycles/second
- Pulse length: 10^{-1} to 10^{-10} seconds

Computer Control

- Individual control of each DFM
- Apply gradient of voltage and current by location on sphere
- Selection of any group of DFMs for synchronous pulse firing
- Assignment of groups of DFMs for sequential pulse firing
- Assignment of polarity to group of DFMs
- Display map or grid of DFMs to show voltage, current and polarity assignment
- Display timing status for all DFMs
- Variable ramp up time from zero to maximum
- Temperature monitoring

Notes

Will require liquid cooling.

Applied Micronuclear Physics

Appendix C

Nuclear Electron-share Based Periodic Table of the Elements

Nuclear Electron-share Based Periodic Table of the Elements

This chart is based on the theory that neutrons do not truly exist as a separate particle. Experiment shows that when ejected from a nucleus, a *neutron* splits into a proton and electron. Postulating that a *neutron* is composed of a proton and electron while still in the nucleus, this may be explained through the model of an electron *wave* superimposed on a proton *wave*, the combined two resulting in a slightly larger and more complex *particle* than a proton itself. The neutron has been measured as just such a particle, slightly more massive than a proton. Thus, a model for nuclear shell structure for *nuclear electron states* can be proposed. The conventional periodic table shows that there are never more than two neutrons for any proton in any element.

This chart was created by a computer program designed to combine "nuclear electrons" in two configurations.

- First, it is assumed that there are no neutrons in the nucleus whatsoever.
- Second, this means that the proton count equals the atomic weight.
- Third, that the "nuclear electron" count equals the neutron count.
- Fourth, that there are not separate protons that combine with electrons and protons that do not,
- but that they all combine, "sharing" electrons in groups or shells of some sort.
- Fifth, that there are two types of combination.

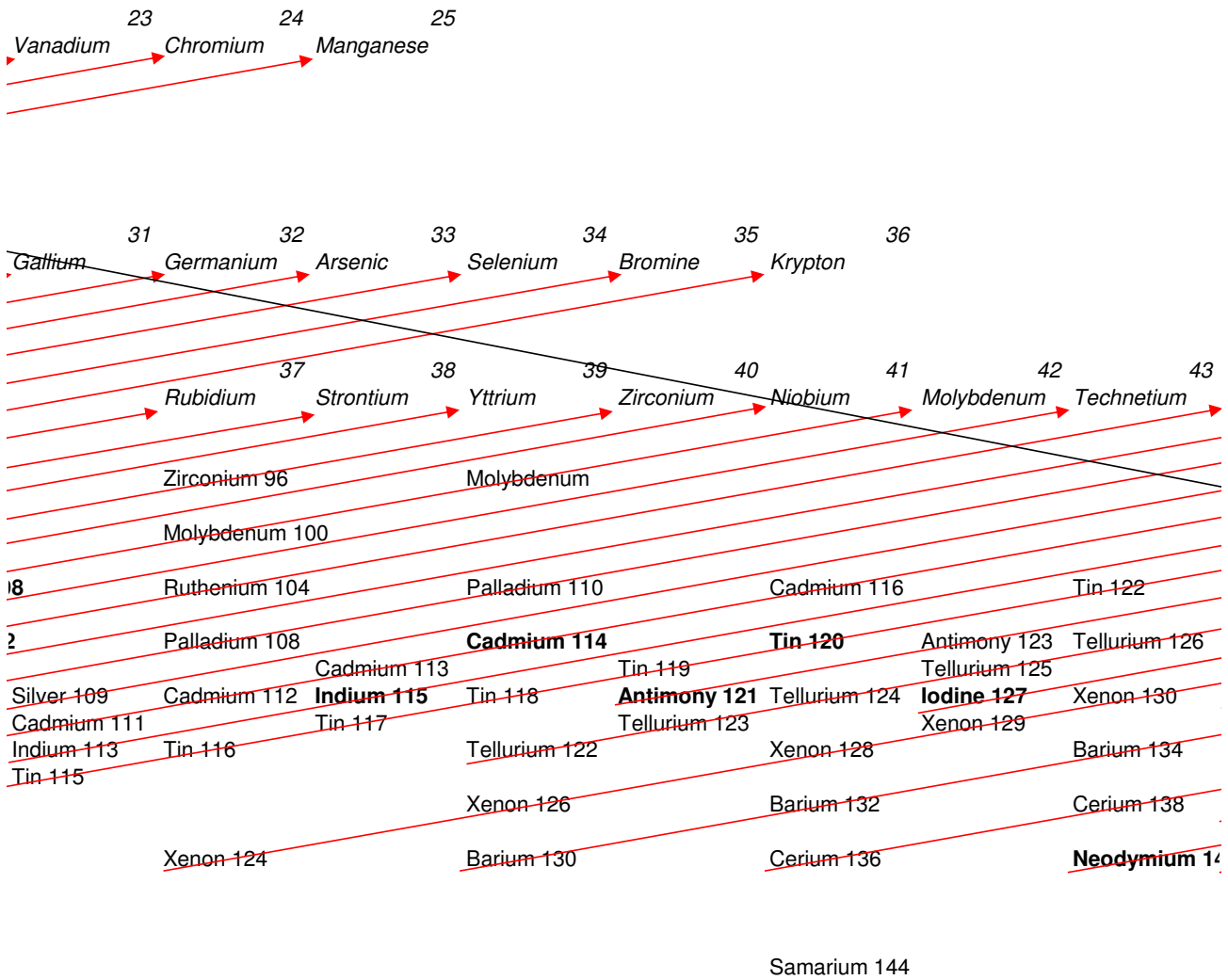
This chart maps the combinations of PN against PNN.

Starting at 0,0 we get the special case of Hydrogen 1.

Surprisingly, every isotope of every element fits into its own box. No box has more than 1 isotope. I am looking for a way to make this chart "periodic", that is, smaller and factored like the conventional one.

2s / 3s

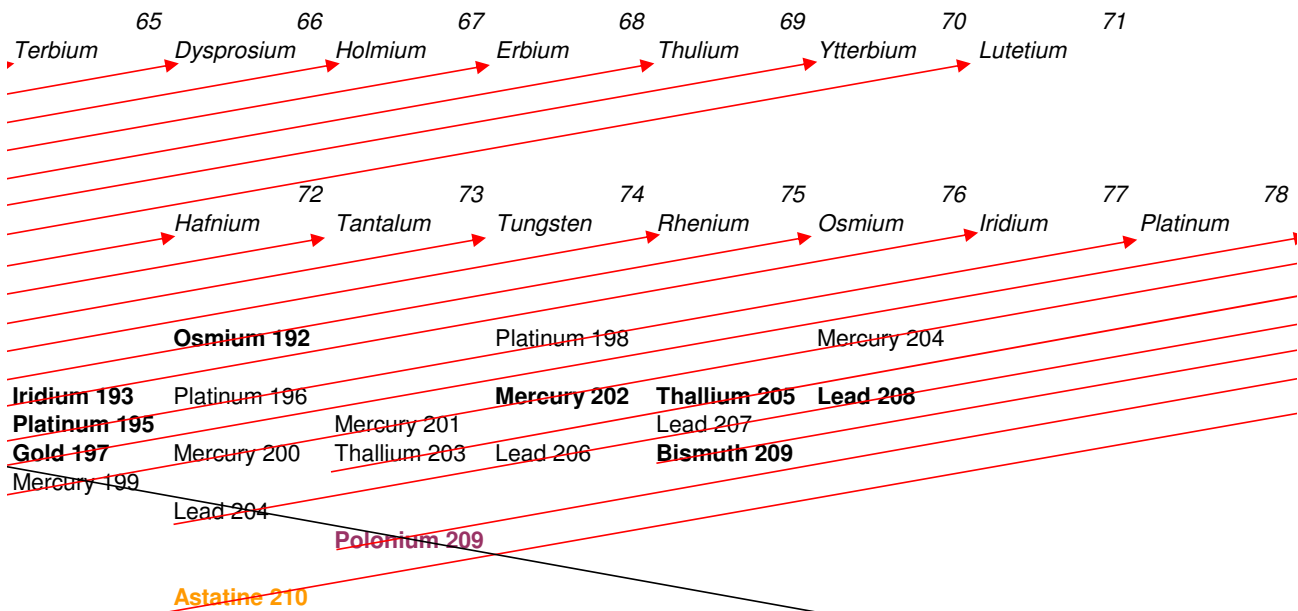
	0	1	2	3	4	5	6
0	Hydrogen 1	Hydrogen	Helium	Lithium	Beryllium	Boron	Carbon
1	Deuterium 2	Helium 3					
2	Helium 3, Helium 4	Lithium 7					
3	Lithium 6	Beryllium 9					
4		Boron 11	Carbon 14				
5	Boron 10	Carbon 13					
6	Carbon 12	Nitrogen 15	Oxygen 18				
7	Nitrogen 14	Oxygen 17				Sodium 11	Magnesium 12
8	Oxygen 16	Flourine 19	Neon 22				
9		Neon 21					
10	Neon 20	Sodium 23	Magnesium 26				
11		Magnesium 25					
12	Magnesium 24	Aluminum 27	Silicon 30		Sulfur 36		
13		Silicon 29					
14	Silicon 28	Phosphorus 31	Sulfur 34	Chlorine 37	Argon 40		Calcium 46
15		Sulfur 33					
16	Sulfur 32	Chlorine 35	Argon 38	Potassium 41	Calcium 44		Titanium 50
17			Potassium 40	Calcium 43		Titanium 49	
18	Argon 36	Potassium 39	Calcium 42	Scandium 45	Titanium 48	Vanadium 51	Chromium 54
19				Titanium 47	Vanadium 50	Chromium 53	
20	Calcium 40		Titanium 46		Chromium 52	Manganese 55	Iron 58
21						Iron 57	
22			Chromium 50		Iron 56	Cobalt 59	Nickel 62
23						Nickel 61	
24			Iron 54		Nickel 60	Copper 63	Zinc 66
25							
26			Nickel 58		Zinc 64		Germanium 70
27							
28							Selenium 74
29							
30							Krypton 78
31							
32							
33							
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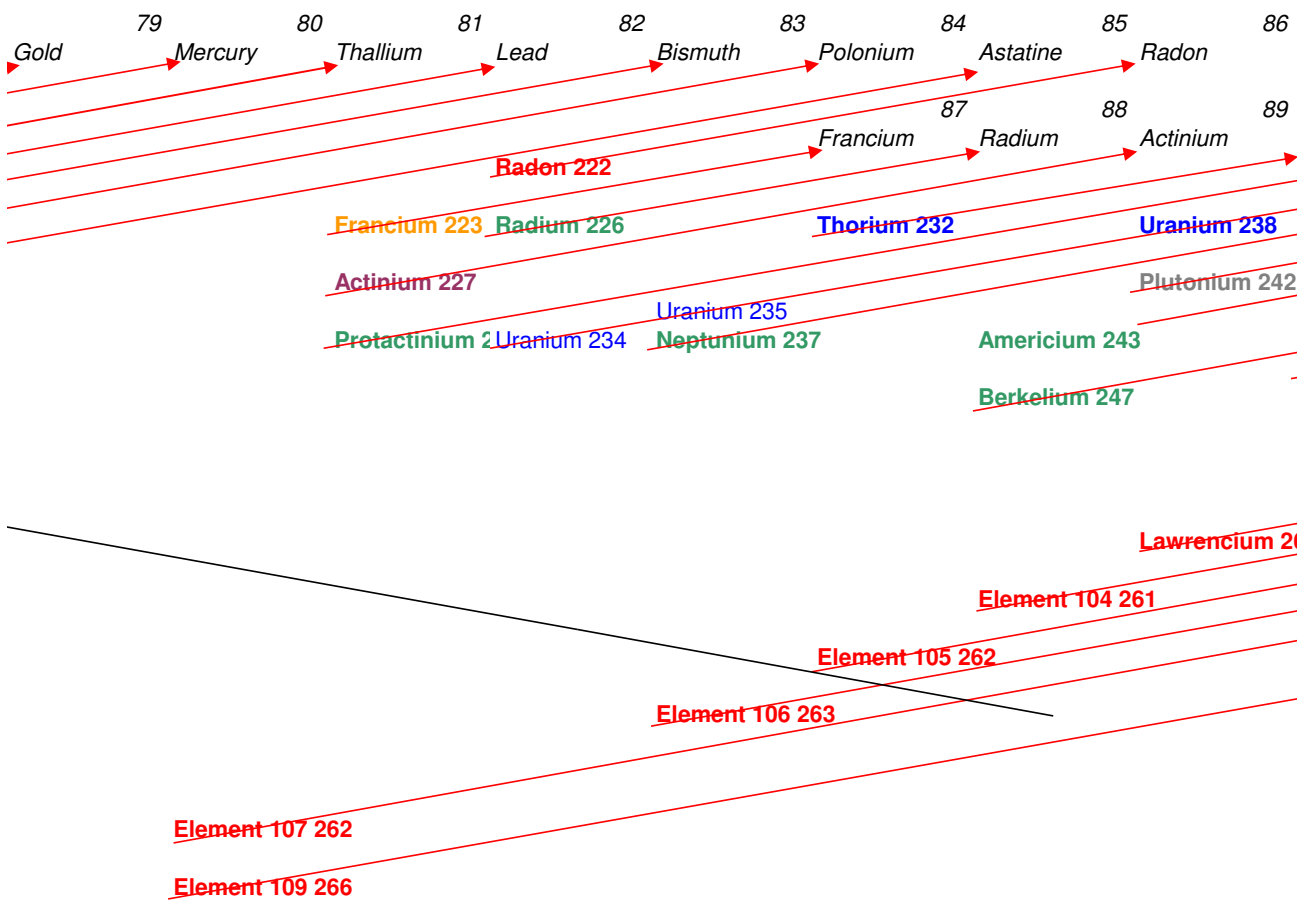


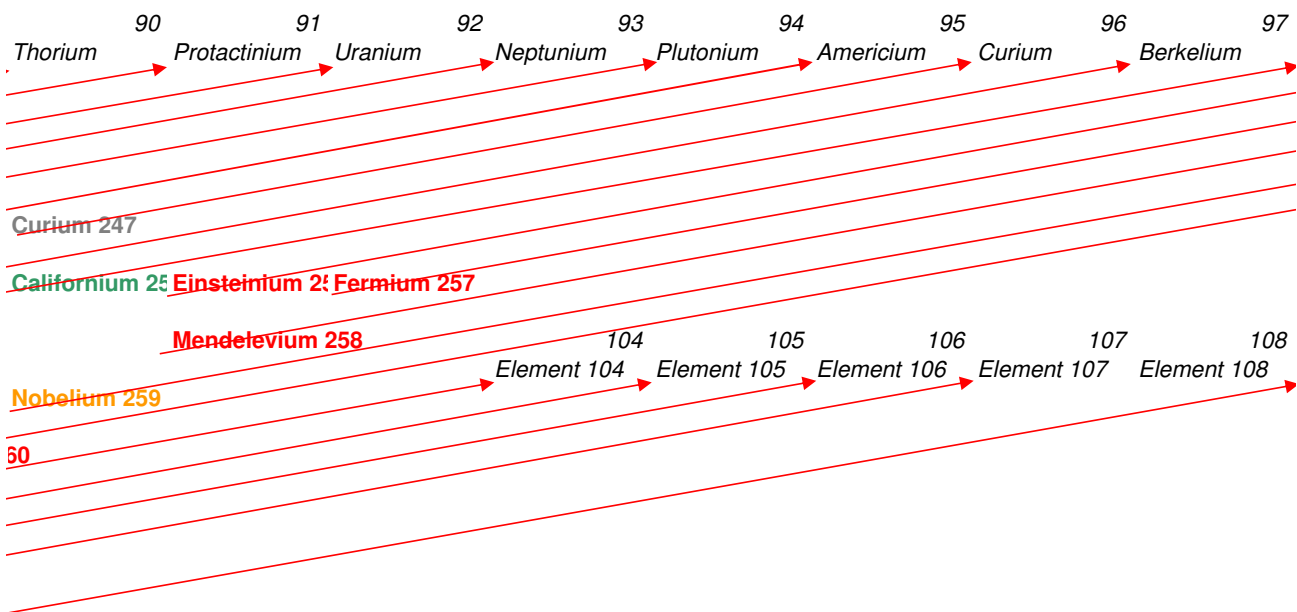
	44	45	46	47	48	49	50	51
Ruthenium	Rhodium	Palladium	Silver	Cadmium	Indium	Tin	Antimony	
	Tin 124		Tellurium 130		Xenon 136			
	Tellurium 128		Xenon 134					
	Xenon 132		Barium 138					Neodymium 150
Xenon 131	Barium 136	Barium 137	Lanthanum 139	Cerium 142		Neodymium 148		Samarium 154
Barium 135	Lanthanum 138							
	Cerium 140		Neodymium 146		Samarium 152			Gadolinium 156
	Neodymium 145					Gadolinium 157		
Praseodymium 143	Neodymium 144		Samarium 150	Europium 153	Gadolinium 155	Terbium 159	Dysprosium 161	
Neodymium 143		Samarium 149		Gadolinium 154		Dysprosium 160		
Promethium 147	Samarium 148	Europium 151						Erbium 166
Samarium 147								
	Gadolinium 152		Dysprosium 158		Erbium 164			Ytterbium 170
	Dysprosium 156		Erbium 162		Ytterbium 168			Hafnium 174

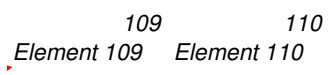
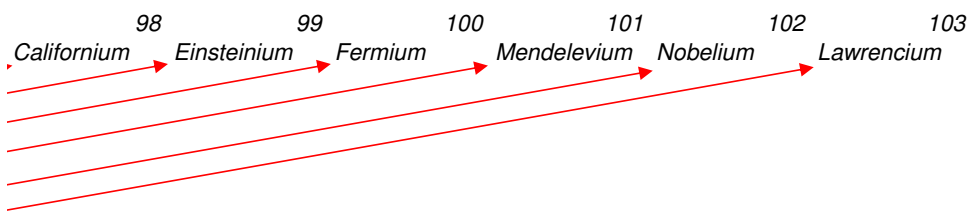
The diagram illustrates the placement of the lanthanide and actinide series within the periodic table. Red arrows show the path from the main body of the table down to the lanthanide series (elements 58-64) and the actinide series (elements 90-96). The elements are listed as follows:

52	53	54	55	56	57		
Tellurium	Iodine	Xenon	Cesium	Barium	Lanthanum		
58	59	60	61	62	63	64	
Cerium	Praseodmium	Neodymium	Promethium	Samarium	Europium	Gadolinium	
8	Dysprosium 164	Erbium 170	Ytterbium 176				
Dysprosium 163							
Holmium 165	Erbium 168	Ytterbium 174	Hafnium 180		Tungsten 186		
Erbium 167		Ytterbium 173	Lutetium 176	Hafnium 179			
Thulium 169	Ytterbium 172	Lutetium 175	Hafnium 178	Tantalum 181	Tungsten 184	Rhenium 187	Osmium 190
Ytterbium 171		Hafnium 177	Tantalum 180	Tungsten 183		Osmium 189	
	Hafnium 176		Tungsten 182	Rhenium 185	Osmium 188	Iridium 191	Platinum 194
	Tungsten 180		Osmium 186		Platinum 192		Mercury 198
	Osmium 184		Platinum 190		Mercury 196		











About the Author

David Cintron is an eclectic, auto-didactic polymath. Having pursued an avid interest in knowledge since the age of 4, he has kept current in developments in the fields of archaeology, anthropology, particle physics, computer science, astrophysics, space exploration, medical science and more. His primary interests are divided into three areas: scientific, historic and philosophical.

Other publications:

Osiris, Darwin, Einstein, self-published, 2019

Theology in the Time of Djoser, Journal of the Society for the Study of Egyptian Antiquities, 2007

Fast Track Web Programming, Wiley & Sons, 1998

