# The Geometry of Light – A revolutionary new theory and a foundation for a New Science.

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## Abstract

We are going to investigate a new theory of Light which we are calling the Geometry of Light. This theory shows us that by applying symmetrical positive/negative geometry to physics and especially quantum physics we are able to solve many of its currently unsolved problems and propose a holistic theory of light that could take us on to a new Theory of Everything.

The first step towards a 'new science' is in fully understanding Light, as light is the first appearance of mass/energy out of the zero-point field, the quantum vacuum of space. We present a revolutionary new theory that proposes light as a composite particle made up of both photons (light/energy) and gluons (darkness/ information). When travelling in free space as 'light' these two particles are always connected, always in interaction with each other, and even though we see the flash of light of the photon, it also has its unseen shadow of darkness called the gluon. This continual interaction between the photon and gluon will explain all the quantum weirdness at that level and above, as all particles of matter are created out of the zero-point field via this photon/gluon pairing.

The photons create an outer boundary (shell/ shield) of each subatomic particle and the gluons hold the inner boundary (strong force/ glue) or centre of the particle. The internal components (mostly quarks and antiquarks) of all particles are held tightly between these two boundaries, making all of matter truly 'frozen light'. When pushed apart like this, in the creation of matter, the photons around the outside of the particle will take on a negative charge (shield) and the gluons in the centre a positive charge (glue). These additional charges, within every particle of matter, contribute significantly to finally and fully explaining the 'weird' characteristics of quantum physics. [1]

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## 0. Introduction

A paradigm shift in science never comes about by trying to rescue the current paradigm, even when it is obviously in deep trouble. It will only come about by creating and presenting a wholly new theory. This is why we are calling this a revolutionary new theory of light; it is not tinkering with the current theory but is introducing a radical new theory that has a number of exclusively new concepts.

Firstly, the particle of light becomes a composite particle. It is made up of two existing particles with polar opposite characteristics, the photon and the gluon. Each light particle will have at least one pair of these particles, but mostly it is a geometric arrangement involving eight or more pairs.

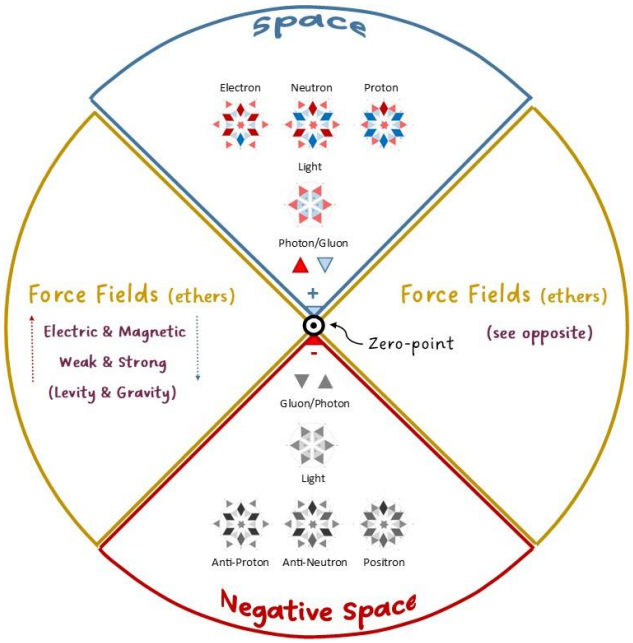
Secondly, the photon and the gluon have charge, with the photon being negative (-) and the gluon having a positive (+) charge. As any particle of light always contains pairs of these two particles it will always have a neutral (0) charge, what is currently seen as no charge.

Thirdly, all subatomic particles have this photon/gluon pair as the fundament of the particle. All subatomic particles, including the electron, have a core of eight gluons, and an outer shell of eight, or more, photons. This gives all particles a positively charged core and a negatively charged outer shell with the main contents of the particle, the quarks, sandwiched between these two boundaries. These extra charges not only hold the subatomic particles together in a powerful grip (strong force) but also give every particle a negatively charged outer shell of photons (important for holding the nucleus together and in all particle interactions).

We also introduce and expand on the concept of zero-point physics [Appendix 1], where at the lowest level of the quantum world, at the point of the quantum vacuum or zero-point field, there is a zero-point connection with negative space. This negative space, or counter space, is a complete physical world as a mirror reflection of our world of space where all particles have the opposite charge, an antimatter world. There is a two-way exchange of particles between these two worlds using a set of unique rules called zero-point physics. What we currently call the quantum vacuum should be seen as a non-physical place extending outwards at ninety degrees to the zero-point connection between the two physical worlds. It has quite different characteristics and is often called the etheric realm to keep a clear distinction between this place and normal physical space. Every particle in space has its own zero-point and all zero-points are connected, via the quantum vacuum or zero-point field, into the zero-point matrix (all points in physical space).

This new theory of light also relies heavily on a precise geometry of space that has the particles of light arranged in a specific 3D form, that then goes on to become the geometry used to bring the subatomic particles together. It can then be found governing

atomic structure, in chemistry and biology, and maybe even in planetary orbits and galactic structure. It is also the geometry of the zero-point matrix, a rigid structure that is made up of all of the zero-points of every particle in space.




Everything above the zero-point (the singularity) is dual in nature, including gravity and time, and this duality of nature is what creates the oscillating tension field creating all of matter.

## 1. Singularity becomes duality - Harmonic resonance

Perhaps our Universe began at a singularity called the 'big bang', however we have no way of proving this for sure. What we do know is that all particles of matter originate from the quantum vacuum, zero-point field, or zero-point energy, and can be reduced no further than this zero-point. Is this zero-point the true singularity, without needing a big bang?

With or without the bang it is quite possible that all matter in the Universe has originated out of the zero-point field and that the combined field of zero-point energy is the starting point of every particle and every atom making up all of visible matter. This paper proposes that the first steps in creating matter out of the zero-point are steps involving pure energy at very low quantities building up to more solid forms as we reach the subatomic particles, and that the apparent solidness of matter does in fact come from the electrical charges between the positive and negative states of the particles involved. This means that all forms of matter take on a duality of positive and negative, or plus (+) and minus (-) and that this duality originates at the level of the zero-point or singularity.

Everything above the zero-point is a duality, without exception, and this arises because of the zero-point being a threshold between two worlds, one positive and one negative (as originally shown by the Dirac equation), electric charge +/- comes about through particles that have originated on opposite sides of this singularity. The first particle pair, the one closest to the zero-point is that of the photon and gluon, these particles being massless and being neutral (or no charge) when seen together, which they always are, then secondly come the quarks and antiquarks (matter and antimatter) and then thirdly the subatomic particles (proton, neutron, electron). Each particle pair has its own zero-point and all zero-points for that particle pair make up the zero-point field for those types of particles. All of the different zero-point fields, for the different particles, make up a universal zero-point field, vacuum energy, or universal consciousness.

The Universe and all particles within it become a harmonic oscillation between the two sides of the zero point, achieving a very finely balanced equilibrium, and the purported endless energy of the vacuum becomes a give and take between two separate but interlinked worlds. The current problem with zero-point infinities, leading to the much-disputed renormalization in quantum theory, is eliminated as the infinite energy levels perceived, or calculated to be in the quantum vacuum or zero-point field, are actually in the entirety of the negative space, which is real and may indeed have infinite energy.

So first, we need to clarify what we mean by the different dualities that are discussed in this proposal.

### 1.1 Charge - Positive and Negative +/-

In this new theory we are going to propose that charge is fundamental to all of physics, all the way down to the zero-point and out the other side into negative space. In fact, we need to see the universe as a duality of positive space and negative space, divided by the zero-point field. In this way we finally give a true ‘physical’ description of charge. Whenever any particle is ‘created’ out of the zero-point field it will always appear as a particle pair with one particle appearing on the positive side of the zero-point, with a positive charge and the other on the negative side, with a negative charge, creating a tension field. A negatively charged particle that crosses the zero-point into positive space will be initially repelled away from the zero-point but will quickly pair up with any positively charged particle, and over time move back towards the zero-point. The opposite happens with a positively charged particle entering negative space. The further a charged particle is from the zero-point the more energy it has.

At all levels it is always this tension field between negative charge and positive charge (electrostatic) that gives matter the appearance of being ‘physical’, you can never totally push two like charges together.

This creates an oscillation of charge across the zero-point as the tension between these charged particles tries to re-establish equilibrium. The further a particle is pushed (or

pulled) away from the zero-point the greater the tension and the stronger the charge. Particles with opposite charges will attract (pull closer), and particles with the same charge will repel (push apart). At the subatomic level this is known as the tension between the proton (+) and the electron (-) of the atom as the electrons are expelled far away from the nucleus which is the zero-point of the atom.

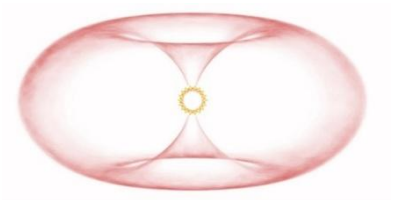
Our first paper [1] shows how the proton consists of mostly quarks (+), and the electron of antiquarks (-). In this paper we will now propose that light is also a composite particle made up of particles of 'light', the photon (-), and particles of 'darkness', the gluon (+). Just like an atom that balances its positive and negative charges to become neutral, the particle of light also balances its charges to become neutral, or what we call no charge.

### 1.2 Light and Darkness

Our universe has a dual nature at all levels, from the zero-point all the way up to the outer boundary of the universe itself. The very lowest level, the first level above the zero-point is that of 'light' and this level must also be dual in nature, both light and darkness. Darkness then becomes a real thing (as opposed to simply being the absence of light), with its own particle, the Gluon. Light, the photon with its negative charge and expanding character, forms the outer boundary, and darkness, with its positive charge and contracting character, forms the inner boundary, of every particle in the universe. Light and darkness form the boundaries, the outer shell (light) and inner core (darkness), of all particles of matter.

### 1.3 Photon and Gluon - A composite particle

The photon, when travelling the expanse of 'empty' space travels as a composite particle, with a photon (-1) travelling as light in this world of light, and gluon (+1) travelling as darkness in this world of light and darkness. The photon, emitted by the sun, travels outwards within our light cone from the sun moving in our real time until it travels around the edge of the solar torus where it will curve back around into the opposite light cone, back into the sun as a gluon in reverse, or negative time. The gluon is travelling out from the opposite light cone of the sun as a photon until it curves around to travel into our light cone as the gluon in reverse time in relation to our real time.

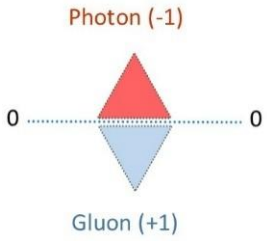


*Solar Torus*

So, a particle of light leaving the sun via the light cone, on either side, is called a photon and a particle of light coming back to the sun via the light cone, on either side is called a gluon. A photon is always a particle of light/energy, and a gluon is always a particle of darkness/mass. We can see that the particles reverse order on each side of the solar

torus, as the photon (-) of our world, travels around the edge of the torus to travel back in to the sun on the other side it becomes a positively charged gluon (+), and a photon leaving the sun on the other side of the sun will change into a gluon as it travels around the edge of the torus in the other direction.

What is important here, and this is absolutely outside the box of normal science, is that at any point in normal time and free space the photon will always appear in combination with the gluon. This also means that the two charges +1 and -1 will cancel, giving this composite particle a neutral charge (0), which is also in line with how science always views the photon. This zero charge is the zero-point of the photon/gluon pair and is also the Zero Point that we know of as zero-point physics creating the zero-point field. When traveling space, the photon and gluon sit on each side of the zero-point giving the +1 and -1 charge, with the 0 or neutral charge in the middle. This is how light always travels, as a packet (particle) of energy vibrating above and below it's zero-point.




*Photon/Gluon pair*

In our light cone, the positive light cone, the photon travels forward in time, towards our future, into the light, and the gluon travels backwards in time towards our past, into darkness, the only known particle that does this. In the opposite light cone, the negative light cone, the photon travels backwards in time and the gluon in forward time relative to the zero point.

There are also two extra points to be noted here. Firstly, there are always situations where the photon and gluon are separated. The special situation of the displacement of space by matter being the most important and this will be covered in full later. The second point is that by having a composite particle we can see that the electric and magnetic parts of the electromagnetic wave are each carried by their own particle, the photon carrying the electric charge and the gluon carrying the magnetic aspect. In the table of Elementary Particles, we see that the photon and gluon both have the same quantum numbers (0 charge, 0 rest mass, and spin1), no other particles do this, making these two particles identical but opposite partners (further in this paper is also a clarification as to why the gluons do not need to be in eight different flavours or colours and that colour charge is no longer necessary for gluons or quarks).

### 1.4 Quark and Antiquark - The duality of matter

The next level above that of light and darkness is that of the quarks, these are the true particles of matter that make up the subatomic particles. When created out of the zero-point field they are also created as a particle of matter, the quark with a positive charge in positive space, and a particle of antimatter, the antiquark with a negative charge in negative space. Single quarks are never found free in space; they are always in pairs and all composite particles are bound up within the photon/gluon particle of light. These composite particles are particles of matter and make up all of our physical universe.

### 1.5 Matter and antimatter

The photon/gluon pair when travelling space always has the photon on one side of its zero-point and the gluon on the other side. However, when matter is created, either at the start of time (the zero-point of creation), or in the intense zero-point solar furnace of the sun, it is created from out of that zero-point by pushing the Photon and the Gluon apart by placing particles of matter in between the two, these particles are both quarks and anti-quarks, and always in pairs. We are displacing light, pushing it apart and creating a bubble of matter, in our world of matter. This is the only birth place of matter, and also why we call matter frozen light.

As soon as these quarks are added they will push the gluons above the zero-point making them positive (+1) gluons and repel the photons further out into space on the other side of the quarks, making them negative (-1) photons. Matter will always take on this threefold form with gluons below, just above the zero-point and photons above in what we call the positive space light cone, our light cone, the shell around matter. The quarks and antiquarks (physical matter with real mass) are sandwiched between the gluons below and the photons above, displacing light in the world of light, creating the particles of darkness. Everything in our world is above the zero-point and below the zero-point becomes a negative space, a counterspace or negative world. Between these two worlds, at the zero-point are the zero-point fields, or etheric forces (ether) that buffer, excite, and manage the inner characteristics of all particles, and these fields form the bulk of the torus.

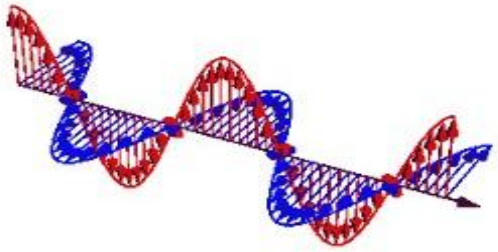
A subatomic particle with three quark/antiquark pairs (3 quarks and 3 antiquarks) has a neutral charge and is then appropriately called the neutron. A particle with four quarks and one antiquark has a positive charge and is called the proton. Lastly, a particle with one quark and four antiquarks has a negative charge and is the electron. In fact, most of the mass of the electron is even in negative space.

Because each particle of subatomic matter (proton, neutron, electron) now has an extra shell of negatively charged photons around the outside and a core of positively charged gluons at its center it takes on extra characteristics than what the charges of the quarks alone are bringing. This negatively charged shell ensures that subatomic particles always repel each other when they get up close, keeping the electrons orbiting away

from the nucleus even though there is a strong attraction between the proton and electron, and especially establishing a strong negative shell around the atom itself as the electrons become strongly negatively charged in their outer shell. These are the electrostatic/ electromagnetic forces that are keeping the electrons in their specific orbits and are creating an appearance of solid matter out of pure energy.

### 1.6 Electricity and Magnetism - Electromagnetism

The electromagnetic field is the force field in which 'light' travels and is made up of an electric field and a magnetic field, it is a composite field. This paper is now able to better explain how an electromagnetic wave, containing two different consecutive waveforms in one, the electric component and the magnetic component, could be created by a single particle, the photon. In this new proposal it is clear that the electric component of the electromagnetic wave is created by the photon with the gluon creating the magnetic component. When travelling in free space these two components are always bonded into a single composite particle that we call 'light' and also (for now) the photon, as there has never been any reason to consider this smallest of particles to ever be a composite particle, or any experiments done to test this.



*Electromagnetic wave*

It may even be that the gluon is in negative space on one side of the zero-point and the photon itself is on this side in positive space, making this photon/gluon partnership the most fundamental of particles or the most primordial particle of the universe, out of which all of electricity and magnetism is generated, and creating all of the rest of the universal laws. It should also be considered that this paper also shows that the gluon must actually be travelling backwards in time, making it very elusive indeed (remember that current quantum mechanics has the positron travelling backwards in time, so this is nothing new).

### 1.7 Time and Anti-time (Reverse Time)

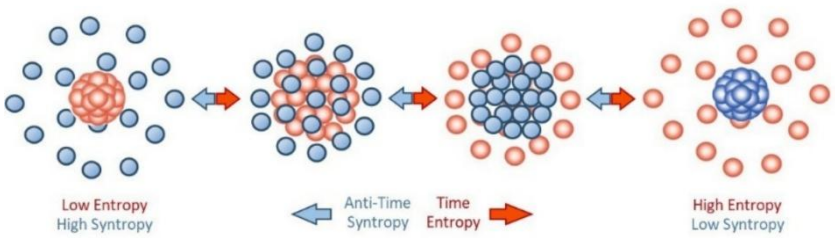
At the start of time, and the start of space (at the beginning of the universe), charge, parity, and time (CPT) were in symmetry. However, they now appear to be asymmetrical in most aspects, especially time, as it is very hard to argue that it could be reversable. We propose that our universe still has CPT symmetry at the fundamental level, and that this is in fact essential for it to even exist. Particles of light (photons) travelling outwards from the zero-point at the speed of light are travelling in Time, and particles of darkness

(gluons) travelling back to the zero-point are travelling backwards in time. However, they are always in sync with each other, always in the 'now' as they are moving, from our perspective, and standing still from the perspective of the particle.

A photon leaving the sun, or a candle for example, is being informed about its eventual destination by its gluon partner that is just arriving back at this light source in real time, it is arriving from the future. Which means that when the photon arrives at its destination, a tree leaf on the earth for example, it arrives at the moment its partner gluon is leaving to travel backwards in time towards the sun. This is how a particle of light is fully informed at all times and always knows where it is going, as well as where it has been. Particles of 'light' and most particle dualities always have one partner travelling in time and one in reverse time, it just looks to us in our perception of time that there is only one particle and one direction time, towards the future (which is hard to deny until we really look). This dual nature of light, time, and subatomic particles is a main feature of this paradigm shift in science.

### 1.8 Entropy and syntropy – Decline and creation

Time is taking us forever towards the future and ensures that everything that has been built up will slowly (or sometimes quickly) decay and fade into nothing, this is what we call entropy. However, particles travelling backwards in time will be reversing this trend and build things up again (just like running the video backwards), and this is why we always have the feeling, in the now, that even though entropy is unendingly at work we are not heading into a dead future, but a future, for us, that is also creating, expanding, and alive with new possibilities.



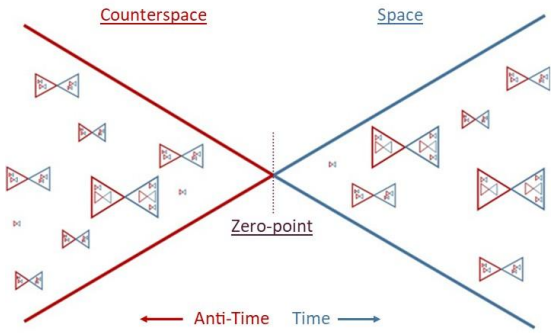

*Time & Anti-time - Entropy and symmetry*

### 1.9 Space and counterspace (negative space)

Fundamental to this new theory is the zero-point field, and the zero-point of each and every particle that makes up this field. The zero-point is the middle of the infinity symbol (the lemniscate) which then shows two separated worlds, one on each side. The left side is usually designated as the minus one (-1) world or negative space and the right-hand side as the plus one (+1) world we call space. Negative space is sometimes called counterspace however, Dirac was the first to write negative space into a scientific formula (the Dirac equation) which not only confirmed minus one space (negative space or counterspace) but also proposed antimatter for the first time and kicked-off the unsteady marriage between quantum physics and relativity.

The Dirac negative space is seen as an infinite sea (the Dirac Sea) of negative space but with all negative spaces already occupied and so avoiding a catastrophic flow of positively charged particles across the zero-point into negative space. A new theory from Neil Turok, The Mirror Universe [2], proposes the zero-point to be a mirror that reflects an imaginary negative universe (on the other side of the big bang) back onto our own positive universe.

What we are proposing is a real negative space that is in harmony with our own positive space, with particles travelling in both directions in a harmonic oscillation (breathing in and breathing out, give and take) between the two worlds, effectively a real mirror world (CPT, charge, parity, time reflection) of equal but opposite characteristics to our own world. All oscillations of the system are in order to maintain balance between the two worlds, making infinite energy extraction (free-energy proposals) from negative space




*Simple representation of Space and Counterspace*

much less possible, avoiding a collapse of the system. This harmonic balance is what gives all particles their intrinsic charges and enables the tension fields (essentially all of the known force fields) that create matter, antimatter, subatomic particles, atoms, and our visible universe as a whole. This is the new science.

### 1.10 Positive one (+1), Zero (0), and Negative one (-1) – The Quantum World

Every particle in existence whether it be a photon, gluon, quark, antiquark, or composite particle has its own zero-point. All of these zero-points together make up the zero-point field which acts as an energetic membrane or matrix between space and counterspace (positive space and negative space). Here we are at the boundary between two worlds and this boundary is guarded by the smallest of portals, the zero-point, that allows only one particle at a time to pass through in any direction.

In fact, we need to see each zero-point as a gateway between the worlds and particles as the travelers and guardians of the gate, allowing only whole particles of either plus one (+1) or minus one (-1) to pass at any time. These guardians stand on either side of the border and ensure that energy above one (+1 or -1) will move away from the gate in integer units out into the world, and all energy below one will migrate back towards one until it also becomes ‘whole’.

Plus one and minus one effectively function as mirrors reflecting particles back into the world above or the world below the zero-point, here we are placing two mirrors on either side of the zero-point rather than one mirror at the zero point, allowing both worlds to exist as complimentary worlds in full interaction with each other.

## 2. Light – Through a new lens, a New Science

As the first level above the singularity, or zero-point, light is in principle a transition stage between the quantum vacuum energy and real matter (mass), the first step towards becoming solid matter, or creating 'something out of nothing'. It achieves this as the first particle partnership above the zero-point, being made up of the negatively charged photon and the positively charged gluon. This partnership has an overall neutral charge, or what is currently called 'no charge'. Because the photon and gluon are intimately connected at all moments in their journeys through space the photon has always been seen as the particle of 'light'. The zero-point field associated with light is the electromagnetic field which is in turn made up of the electric field and the magnetic field, cementing in place this most important of partnerships. Light is able to (and does) travel easily through the zero-point in both directions, as and when necessary.

Because we now have an alliance between the photon and the gluon, we are also able to explain the dual nature of the electromagnetic field, the photon as a particle of the electric field and the gluon of the magnetic field. This is also why the particle of light is able to simultaneously carry not only energy but also large quantities of information in two directions. Traveling not just from a source to a sink but also back again to the source, backwards in time. This can be seen as the photon being emitted by the source at the moment a gluon traveling backwards in time from the sink arrives carrying the information needed for the photon to travel directly to the sink, the photon arriving at the sink in forward (or real time) arriving at the moment the gluon leaves to travel back in time to the source to tell the photon where to go. At this level of quantum physics there is no law that prevents this movement backwards in time, and this should be a serious area for further research. Remember, it is not that the photon reverses direction but that the gluon is always traveling backwards in time when traveling in free space. We have never been looking for this effect as the photon appears to exhibit all the characteristics of light whether there is a gluon involved or not. However, the gluon adds a whole new level of structure to the particle of light that we can use to explain most of the unsolved problems in quantum physics, without creating any new problems.

When considering that all particles leaving the zero-point are in a dual partnership (as a direct result of the double-sided nature of the zero-point, space and negative space) the particle of light must have a partner particle, and the gluon is the perfect match, both having zero mass, zero charge, and a spin of one. The zero charge is then converted into a positive charge for the gluon and negative charge for the photon opening the door for some very exciting new physics, currently called; zero-point physics.

That the gluon is currently only found (by the vigilant quantum physicists) within the subatomic particles does not rule out the possibility of it partnering with the photon to create light (and the electromagnetic field) when traveling in space. The quantum effect we call light may have a lot more to it than we think. Now that we have these two

particles leaving the zero-point together as an intimate partnership we have the perfect foundation for all of matter above this level. What we are proposing is that the quarks (quark and antiquark) when created out of the zero-point field will always be inserted between a group of photon and gluon pairs, with the photons holding the outer boundary of the new composite particle and the gluons holding the inner boundary.

When pushed apart like this, in order to insert the quarks, the greater distance between the photons and gluons means that the neutral charge is lost and the gluons exhibit their true positive charge and the photons a negative charge. This means that all subatomic particles (including the positively charged proton, the negatively charged electron, and the neutron) all have an outer shell of negatively charged photons and an inner core of positively charged gluons. This is adding an amazingly intuitive additional layer to these particles where the extra positive charge of the gluons in the core of the particle is pulling the quarks together (strong force) and the extra negative charge around the outside of the particle ensure that all particles, when coming in very close proximity to each other, will always repel each other due to the equal negative charge (electrostatic repulsion). This way we can see that particles never actually 'collide and crash' with each other but graciously repel each other at close proximity.

The force of attraction between the negative photon and the positive gluon (that has up to now misled science into believing the photon to be an elementary particle) is so strong that these particles cannot be pulled apart by any currently known force. All subatomic particles are made, however, by pushing apart the photon gluon pair and inserting the quarks (or any combination of quarks and other elementary particles), this is usually as a result of extreme energy situations such as our sun, stars, cosmic ray collisions, plasma reactions, and particle colliders. Every attempt to pull, or smash, these particles further apart either results in the particle stubbornly holding it particles together, or the particle splitting and creating new particle pairs. This is what we currently know of as the strong force, and this proposal is one of the first clear explanations of exactly what the strong force is and how it is generated.

By adding the outer shell of photons and inner core of gluons (and their associated charges) to the subatomic particles we have added the possibility for all subatomic particles to carry large amounts of information, to interact dynamically with each other (through the exchange of outer photons with each other), to store and manage large amounts of energy, to create bonding layers with each other (explaining many processes in chemistry and biology), and to explain many of the difficult to follow quantum effects of light.

This is the revolutionary new theory of light, and we can now look at a short list of how this theory sheds a new light on Light.

## 2.1 QED – Quantum Electro Dynamics

Much of what is happening at the quantum level of particle physics (everything from the subatomic particles down to the zero-point) is happening as discreet quanta of energy which need to be described as packets of vibration, or as tiny oscillators in the electromagnetic field as Max Planck originally envisioned this. These oscillators then are tiny vortexes, or waves within the waves (packets or wavelets) of electromagnetism.

In this new theory of light we can see the photon/gluon particle of light as the oscillator or 'container' in which particles of matter are enclosed or held, with the positive charge of the gluons in the center pulling all negatively charged particles back towards the center, and the negatively charged photons around the outside of the container radiating outwards as well as pushing all negatively charged particles back towards the center, in fact this container is the vice-like grip of the strong force on all subatomic particles, including the electron (which is also a composite particle containing both quarks and antiquarks). All subatomic particles then have a clearly defined and rigid boundary making them undoubtedly quanta of energy and vibration.

In this new structure the particles are not only bound between the positive charge of the gluon and the negative charge of the photon, but all subatomic particles now have a weak negative charge around the outer periphery of the particle, a shell of negatively charged photons, making any interaction between particles at close range a repulsive force. The quarks and other particles of 'matter' within the subatomic particle will give an overall positive or negative charge to the particle but the outer shell is always negative due to the photons. This is why particles never crash into, collide, or bounce off of each other but are gently repelled when coming into close proximity with each other. In many stronger interactions there will also be an active exchange of these outer photons between the particles especially between electrons that are already repelling each other due to their inherent negative charge. In fact, the stronger the reaction the larger the number of photons that will muster to repel the approaching particle.

Within the atom this exchange of photons is also ordering the electrons into their appropriate orbitals. This is also why we are unable to force the electrons closer in towards the center of the atom, or to compress the electron to more than a certain point, and why all particles of matter have a rigidness or structure that does not collapse, creating the material Universe that we see.

Within the nucleus of the atom this shell of negative charge around the proton is also helping to overcome the inherent positive charge of the protons that would prevent them from combining into the nucleus.

In fact, QED becomes greatly simplified when considering this new theory and much of the quantum complexity is reduced to a very simple physical geometry. This would make Richard Feynman very happy, who once said, *"I think I can safely say that nobody*

*understands quantum mechanics"* and even give more physical reality to his simplified Feynman diagrams. He was also a strong proponent of the 'many paths' theory that had light always explore every possible path before reaching its final destination, and through a statistical probability calculation choosing the simplest or fastest possible route. This is now no longer necessary as light shows itself to be fully informed at all moments on its path.

When taken even deeper to the level of quark/antiquark interaction within the subatomic particles this theory also dramatically simplifies QCD, quantum chromodynamics, by seeing the 3 quarks as three quark/antiquark pairs making the calculation of charge much less complicated [1].

### 2.2 Black body radiation, Photoelectric effect

At the foundation of quantum mechanics are the two experiments that introduced the particle (packet) of energy which came to be known as the 'photon' or particle of light that creates the waves in the electromagnetic field.

In black body radiation this particle was used to solve the ultraviolet catastrophe that saw the energy carried by light racing off to infinity at higher frequencies (ultraviolet and above) in all calculations, which was clearly not possible and not what we see. By modeling energy as quanta (packets of energy) carried by the photon (particle of light) it was found that there were much fewer particles carrying high energy (high frequency) than particles of lower energy, ensuring that light at higher frequencies would not go to an infinite energy level. The photon/gluon particle of light, and the electron with its photon/gluon boundaries are perfectly suited to carry the energy and information required for this model.

The photo electric effect, where light shining on an object could displace electrons from the material of the object by exciting the electrons into higher orbits, was seen to be related not to the intensity of the light but to its frequency, electrons only being emitted by light of higher frequency. This also requires a particle of light model (photon), that allows packets of energy to be carried by light, with the higher frequency packets having much more energy than the lower. Here, the photon/gluon particle of light works perfectly, as these particles react directly with the outer photon shell of the electrons, which are building and buffering the incoming energy and supplying this directly to the interior of the electron. Low frequency light, even at high intensity, never excites this outer shell of photons enough to supply extra energy to the electron itself and so never exciting electrons to a high enough orbit to leave the atoms of the object.

### 2.3 Wave Particle Duality

At its first inception quantum mechanics could have meant the end of light as a wave, as the whole reason for quantum mechanics was to show that light was a particle, even giving this particle a name, the photon. However, it was clear that light travelling as a

wave was not finished and was not going to go away. Many experiments now show light to in effect be both a wave and a particle, and the era of wave particle duality began.

This new proposal for the structure of the photon/gluon light particle, as an internally oscillating composite particle resolves the wave particle duality problem and allows it to be clearly a wave-like particle (wavelet) travelling as a wave in the electromagnetic field. Because all other subatomic particles have this particle at the foundation of their structure, they will also exhibit the same wave particle characteristics.

### 2.4 The double slit experiment

Firstly, is this experiment showing us a true wave interference pattern, or is it splitting the light into strips of light and strips of darkness on the screen? Maybe we are being shown the true nature of light, that it is made up of light and darkness (as a true something, rather than nothing), of the photon and the gluon (dark photon). This is now becoming cutting edge science as new research is showing. [3]

Secondly, the photon/ gluon approach to light also sheds new light on the classical double slit experiment and can much better explain the quantum description of wave-particle duality. The photon/ gluon pair making up a particle of light that is carrying energy and information in both directions of space and time; this makes light (the electromagnetic field) a powerful matrix in which all particles must move and reference themselves to, at all moments in time (the now). Particles of light (information) travelling through the matrix (space) always know exactly where they are in reference to all other particles around them, as well as to the origin of the particle (source) and the end destination (goal/sink). The electromagnetic field becomes the physical medium (matrix of space and time) in which the particles of light travel and becomes the information field in which all particles reference themselves to. The photon/ gluon pairs of light are the interface between all particles in space at all times.

Now we can see that the ‘photons’ in the classical double slit experiment are not travelling randomly through the experiment but always know exactly where they are, where they came from and where they are going, at all times. The physical layout of the experiment (the size and placing of the two slits, the distances from the light source to the slits and to the screen, and the intensity of the light) are carefully chosen for the experiment and the particles of light will respond in only one way to this setup. The fact that the particles of light must respond to these physical parameters of the experiment, and that the particles of light know how they will respond leads to the experiment always showing the same results. This result then being interpreted by the experimenter as a wave interference pattern or as a splitting of the light particle into its components of light and dark, depending on the philosophical bent of the experimenter.

Because the experiment is precisely set up to give the same result each time (the particle of light knowing exactly what it must do, like a rat in a maze) it must always give

a different result when interfered with, such as endeavouring to measure which slit the light particle has travelled through (in which case the detector becomes a sink, or end goal for the particle rather than the screen). This is not an observer problem but simply a physical alteration to the set-up that the particle will automatically respond to.

Finally, with the concept of sending only one particle of light at a time through the experiment, the photon and the gluon (comprising the particle of light) are actually travelling in two opposite directions through the experiment and are inevitably showing an interference with each other (they can be shown through this experiment to be the two components of light and darkness). It can also be shown that even when reducing the intensity of light down to a level that is described as 'one particle' it can still be made up of many pairs of photons and gluons.

### 2.5 Superposition and decoherence

Quantum physics currently has, as one of its main characteristics, the concept of superposition, which allows a particle (or quantum object) to be in two states at the same time (even though this seems unrealistic) until the superposition collapses or decoheres and the particle takes on one real state.

> *The superposition of amplitudes ... is only valid if there is no way to know, even in principle, which path the particle took. It is important to realize that this does not imply that an observer actually takes note of what happens. It is sufficient to destroy the interference pattern, if the path information is accessible in principle from the experiment or even if it is dispersed in the environment and beyond any technical possibility to be recovered, but in principle is still 'out there'. The absence of any such information is the essential criterion for quantum interference to appear.* [4]

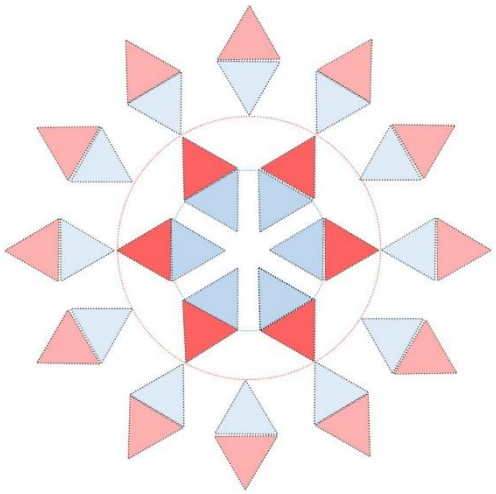
However, superposition is really a mathematical way of giving a point-particle the assumed properties needed to explain what we see in reality even though the particle has no internal structure that can explain these characteristics. With our new theory of light as a composite particle we no longer need these concepts and quantum mechanics is greatly simplified again, returning much closer to classical physics.

### 2.6 Polarization, the three-polarizer paradox

Here we are dealing with the current quantum mechanics description of the three polarizers experiment which endeavours to declare the strange result of this experiment in terms of quantized particles of light. Why can two polarizers arranged vertically and horizontally block all light whereas adding a third at 45-degrees between these suddenly allow light to pass through? Although quantum mechanics describes this as having to do with probability waves of individual particles it is perfectly possible to get this result using simple waves of light. In classical electromagnetism waves are seen as continuous and spread out across space, whereas a photon is a localized wavelet, a discrete packet of energy traveling in an underlying medium, the electromagnetic field.

These wavelets are not just responding to the polarizers, in respect to their orientation but are actively adjusting their own characteristics to the polarizers as they physically travel through. The 45-degree polarizer actively twisting the polarized light enough to allow it to actively adapt to the following polarizer and pass some of the light through, whereas it would normally be blocked. [5] *Collapsing the Superposition Narrative*.

Because the photon/gluon composite light particle carries information (and energy) in two directions through the experiment it is able to actively adapt to the circumstances of the experiment and find its way through even though it would intuitively seem impossible. Explaining why the 45-degree polarizer is able to move the orientation of the light wave enough to allow it to navigate the following hurdle. Becoming simple physics rather than mathematical quantum probabilities.



*Wavelets of Light*

## 3. The Geometry of Light

In order to fully grasp this new construct of composite particles of light we can look deeper into the underlying geometry of light. Once we step away from the photon of light as being a fundamental particle (that in principle is limited in its abilities to a single particle with very limited ability for internal structure and character) to light having to be a dual composite particle made up of photons and gluons with opposite charges, we give it a highly improved potential for internal structure, charge, energy capacity, information storage and 'spin'.

Currently science sees the photon as a point particle with zero mass, zero charge and a spin of one whole. This is what has traditionally been the result of investigation and experiment involving particles of light, firstly as waves within a cosmic ether, then as quantum particles, and finally as a wave/particle duality in the electromagnetic field. Even though this is an evolving concept (science not yet really certain of how to resolve the wave/particle duality, or how to explain light travelling in 'empty' space) there has never been any serious discussion of light, the photon, as being a composite particle, even though the indivisibility/divisibility of matter (quarks) at this fundamental level is often considered.

Apparently light is still considered to be so fundamental to physics, and the world, that we are not yet in a position to consider the particle (wavelet) or wave of light to be made up of more than just the photon. In this proposal we are putting forward a definite geometric description of light (meaning it is more than just a point particle) and is composed of two different, geometrically opposed particles, a duality involving the photon (-) and the gluon (+). These two particles evolve on opposite sides of the zero-point but are not confined to living out their life on only one side of the zero-point, thus a particle from negative space (photon) that crosses into positive space still has a negative charge and will pair up (without annihilation) with a positive particle (gluon) on this side of zero-point. This pair will then have no apparent charge or can be considered as neutral and is the most fundamental building block of matter.

Every particle in existence in the universe has its own zero-point (this is why our universe is made up of only dualities, each particle always having a dual partner) and all of these zero-points are connected with each other via the appropriate zero-point field (or aether, in the traditional or classic science of Alchemy), such as the electromagnetic field for particles of light (the electric field for photons, and the magnetic field for gluons). All of the different local zero-point fields are connected via one universal zero-point field for this local region of space, for us that is the sun and our solar torus, and all regional zero-point fields are connected via the Universal zero-point field of the galaxy and then the Universe itself. Everything is connected with everything else via this zero-point matrix and our Universe becomes an informed Universe, or 'conscious' Universe.

The zero-point field (zero-point energy, quantum vacuum, ether, aether) is not the same as the zero-point. The zero point connects the two worlds, or two particles in a particle pair. The zero-point field is non-physical and connects all zero-points to each other, outside of space and time. This field is how all zero-points are connected without them all having to physically be connected via one physical point in space, which is not possible. The two worlds meet at one point in space time, however the zero-points of each and every particle pair within each world connects via the zero-point field.

The particular type and character of each particle determines which of the different fields that that particle will use to connect with all other particles of that same type and then via the zero-point field itself to all other particles, of any type. There are four main sub-fields, each representing one of the four boson fields (fields of the four fundamental forces) and in Alchemy these each have a separate name based on the etheric field system. The four fields are, the electric field, with the photon as force carrier (the light ether), the magnetic field, with the gluon as force carrier (the sound ether), the strong force, with the quark as force carrier (the life ether), and the weak force, with the antiquark as force carrier (the warmth ether). The strong and weak force are normally shown as having other bosons as force carriers and this is one aspect where zero-point physics differs slightly from current quantum physics. There are also other zero-point fields within each of the four main groups, each representing other particle types within that group.

In effect, there are only two main forces governing quantum mechanics, the electric force and the magnetic force, and within this electromagnetic duality there is a sub group that contains the strong and weak forces, they are still directly related to electromagnetism. At an even deeper level we find the forces of gravity and levity as a sub group of the strong and weak forces. This ordering, that flows out of the dual nature of the space and negative space model, will also allow an ordered Theory of Everything, that includes all of the known quantum fields and their forces.

When travelling in free space the particle of ‘light’ has the photon travelling, in time, from the source to the sink, and the gluon travelling, backwards in time, from the sink to the source. This allows the light particle to always know, at all times, where it is coming from, where it is at this moment (the now) and where it is going to (for a particle of light there is effectively no past and no future, only now). This is the revolutionary aspect of this new theory, and it allows space (and counterspace, or negative space) to take on a rigid matrix-like structure that forms and informs all of matter (and antimatter), space becomes the ‘information space’. Matter really does become ‘frozen light’, and quantum mechanics becomes much simpler, easier to explain, and much more capable of defining the future (and the past).

### 3.1 The speed of Light - General relativity and mass

Both the photon and the gluon are known to have zero rest mass; in the Geometry of Light this is also true. This allows the photon/gluon pair to travel at the speed of light, something that no other particles can do. This also means that any particle with mass can never reach the speed of light, as the energy required to do this increases to almost infinite value, then each further increase in speed increases the mass to a value that makes it even harder to accelerate the particle further without requiring infinite energy, and therefore also sending the particle to an even larger mass.

Any particle that has been accelerated beyond the zero-point (in either direction) will have mass, this is how mass is created. All atoms, and their subatomic particles are constantly moving (oscillating), even when at rest, and so always have mass. Because the photon/gluon pair have been accelerated up to 300,000 km/s both of these particles will also have mass, even if it is very small, before this speed there is no separation between the photon and the gluon and they will appear, even at almost the speed of light to not be there at all, at the speed of light they acquire just the right amount of mass to 'appear' out of the zero-point, and above this speed they will acquire a mass that forces them to collapse back into the zero-point field and disappear again at infinite speed.

Light, as a composite particle, travels our universe at the speed of light, and only this speed, never slower and never faster, that we can see. This is what sets the physical laws for all of matter, all of space, and also gives us the tick of our clocks, absolute time. Our universe is light and is made of light. The waves of light that travel out from the sun are waving in light, they are light, and the sea of light that is formed by all the combined zero-points of the photon/gluon pairs is the electromagnetic field of the sun. The energy of these zero-points of light is part of the quantum vacuum and known as the light ether (long ago the luminiferous aether).

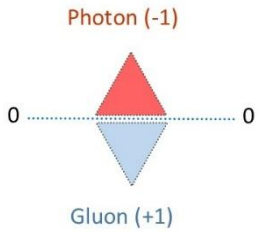
If we view the solar torus as a double light cone formed by the doughnut shape of this torus, we can see the light travelling out from one light cone and then bending around the torus to return to the sun via the second light cone, and of course light leaving the sun via the other light cone will curve around to re-enter via our light cone. These two directional round-trip dances of light from the sun are governed by the solar torus and are most likely what sets the speed of light at almost 300,000 km/s, travelling in the electromagnetic field, the sea of light and darkness of the sun, which also equates to approximately 3 days for a round trip of light.

Most likely the speed of light that we know is directly related to the electromagnetic field of our own sun, meaning light could have a different speed around other stars, governed by their own electromagnetic field. We have no way of knowing if this is true or not, at the moment. Light travelling towards us from outside our solar system, light from other stars when coming through our own light cone, to our eyes here on earth, is carrying all

of the information about those stars but will be sped up or slowed down to 300,000 km/s by the solar torus field of our sun. We have no way of measuring this at present.

### 3.2 Quantum Geometry

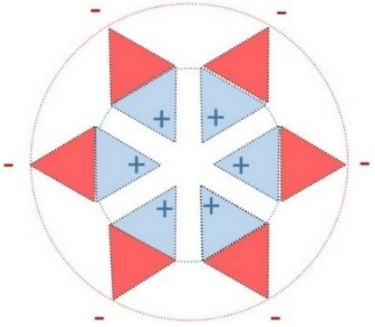
In Quantum Geometry a photon becomes a very small vortex of energy with a specific spin in the form of a tetrahedron, and the gluon is a tetrahedron with the opposite spin. These are always drawn, in 2D, as an upward pointing triangle for the photon and a downward pointing triangle for the gluon (in Alchemy these are the symbols for Fire and Water, and this fits very closely for the photon of light and electricity as fire, and the gluon of darkness and magnetism as water). Now that we have this fundamental particle of light made up of the photon and the gluon, we can go on to build up all of the more complex particles making up our world using very simple geometry.




*Photon/Gluon*

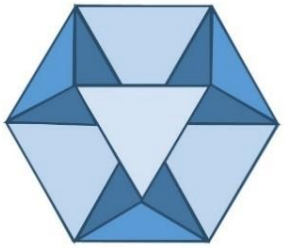
Firstly, we will build a basic particle of light, here the photon (-) has crossed the zero-point and become a negatively charged particle in positive space with a partner particle the gluon (+).

This will then generally create a larger composite particle made up of eight gluons (around a central zero-point) and eight photons radiating out from this central point, in the following geometric pattern (shown in 2D). This is then the particle and geometry that science is measuring when talking about a particle of light or a classical 'photon'.



*Particle of Light*

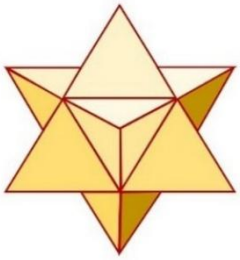
When we show this particle of light in 3D we start to see the significance of this simple geometry in describing all of matter. Firstly, the eight gluons form a composite particle in the center of the particle of light, and they always construct this in the form of a cuboctahedron (or more precisely an octahemioctahedron) which is eight tetrahedra with one point of each meeting at the middle point of the form, creating six inverse pyramid shaped cavities in the six sides of the form (we are calling this the gluon equilibrium).



*Gluon Equilibrium (octahemioctahedron)*

Because the tetrahedral forms of the gluons all meet at the center this gives a strong suctional force of the eight vortexes towards the center. Each of the six inverse pyramid cavities allows one octahedral shaped quark to attach to this form. The eight positively charged gluons give this central form a strong positive charge and strong attractive force.

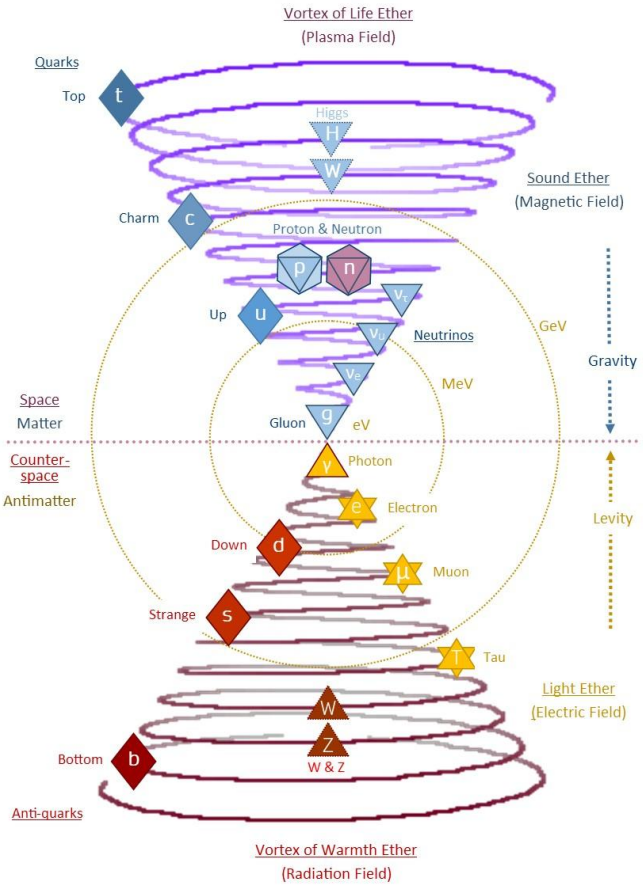
Secondly, the eight photons will always form into the shape of a star tetrahedron, made up of eight tetrahedral vortexes with an octahedral cavity in the middle and eight points all facing outwards. The eight negatively charged photons will give this form a strong negative charge and a strongly repulsive force.



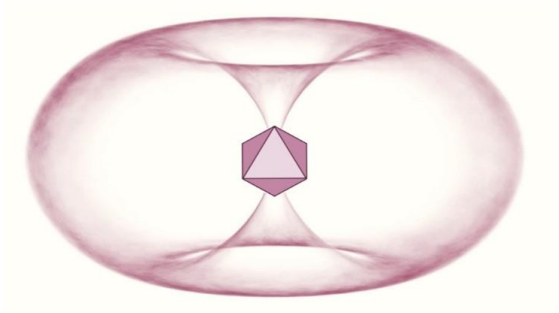
*Photon shell (star tetrahedron)*

The completed form of the gluon equilibrium containing six quarks (which takes on the form of an octahedron) then fits perfectly into the octahedral cavity within the star tetrahedron, completing our subatomic particle. We now have a powerful geometrically stable structure that contains up to six quarks (and antiquarks) held strongly in the grip of the eight gluons and eight photons making up the structure. In fact, it is only with this structure that the subatomic particles are able to include both quarks and antiquarks without annihilation, and it is only at this level that this is possible. In this one simple geometric structure we are able to create the immensely powerful tension field generated between the positively charged quarks and the negatively charged antiquarks,

and we can solve the age-old problem of where all the antimatter has gone, with every atom containing an exactly equal amount of matter and antimatter in a perfectly harmonic balance.



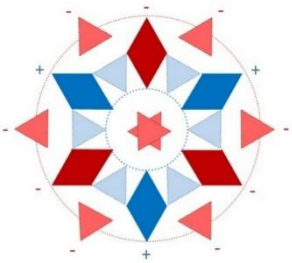

*Origin of subatomic particles in Space and Negative space*



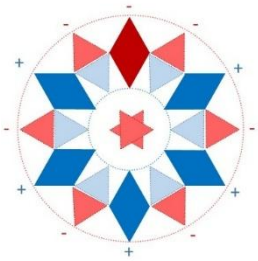
All of what we know of as matter (and antimatter), the physical world, is contained in the double vortex of the toroidal structure of space, this vortex space is the origin of all of the particles of matter matter. The center of the torus is the zero-point with space in one vortex and counterspace in the other. The main body of the torus contains only pure energy, it is the true quantum vacuum, zero-point field or etheric forces, and is what powers our universe.

### 3.3 Subatomic particles

As shown in detail in our previous paper [1] the three main subatomic particles (proton, neutron, and electron) all have this same structure. The neutron then has enfolded three quarks and three antiquarks giving it a neutral (0) charge. The proton has four quarks and one antiquark giving a plus one (+1) charge, and the electron also takes on this structure, but with one quark and four antiquarks, giving it a negative one (-1) charge. This geometric structure is able to explain many of the current problems in quantum and particle physics. It is all we need to make up all of the atoms in the periodic table, and then go on to make up all chemistry, biology and the world we live in.



*Neutron*



*Proton*

This geometry also enables the positively charged protons to still be able to group together in the nucleus, together with the neutrons as these particles all have an outer shell of negative photons that will help to pull the protons close enough for the strong force of these particles to capture them into one composite nucleus of particles.

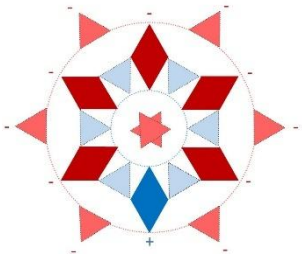
A big part of the energy, and therefore mass, of the subatomic particles is to be found in the strong force holding the particles together, this is in fact the strongest of all the force fields. This force comes not just from the positive charge of the gluons pulling everything back towards the zero-point, but also the fact the photons and gluons have been forced apart by the quarks in the particle. The photons and gluons are doing everything they can to pull back to together, essentially squeezing the quarks in a vice-like grip. This is also why this force is localized to the particle itself, even though it is the strongest of all forces.

A residual of the strong force also contributes to the overall energy and mass of the atom through the gluons in the protons and neutrons of the nucleus pulling towards the zero-point of the atom. The overall effect of all the gluons in massive objects, especially the massive object of our own Earth, contributes to the very weak force known as gravity. This gravitational force always being centered on the zero-point of that object.

### 3.4 The Electron

Because the electron plays such an important role in physics (as well as chemistry, biology and life), and very little is known about its true structure, it is important to discuss it separately here. The electron has an immensely strong negative charge, with

the extra photon shell increasing and emphasizing this charge even more. It is in effect a particle of antimatter in our world of matter, and this explains its powerful abilities.



*Electron*

As explained above, the antimatter is in the form of antiquarks embedded between the photon/gluon geometry of the subatomic particles, so there is no risk of annihilation (the photon shell of negative charge around the electron gives it the exact appearance of any of the other subatomic particles). So, the electron is in effect an immense powerhouse of negative energy, with the ability to recharge (charge and discharge as needed) at all times via the flow of photons from the sun.

However, it may be asked why we currently see the electron as a point particle (fundamental particle), not as a composite particle, and why we don't see remnants of the antiquarks of the electron in collider experiments. This is a good question, and the answer is only speculation. Firstly, we have not yet been able to break open the electron in collisions (convincing us that it is a point particle), and that we may never actually have a collider powerful enough to do this. But what could be happening is that in collider experiments involving the positively charged and neutral particles the internal components (quarks etc.) are exploded outwards to be measured at the detectors, and with negatively charged particles the internal parts (almost only antiquarks) actually collapse inwards into the zero-point, never reaching the detectors around the outside of the collision chamber except for remnants of the single quark minus some negative binding force energy, giving the electron a very small energy (mass).

This unique cubical geometry also extends to the assembly of atoms, with electron orbitals being physically assigned within the x, y, and z axes of space within the atom. These positions may actually be already present in the blueprint matrix of atomic assembly and fill as and when necessary, rather than the current exclusion principle that allows an electron to take its place in an orbital position and then exclude any other electron from also joining in that location, whereas the atom simply includes (invites) the electrons that needs.

### 3.5 Quantum spin

After many years of studying quantum spin, it is quite well explained but still not really understood, for example the particles are not even really spinning and there is not yet any real mechanism for explaining what is creating this 'spin'.

Because all particles now have an internal structure, including the particles of light and the electron which are currently still considered to be fundamental or point particles, we are able to use the oscillations and the internal orientations of the particles to give angular momentum or 'spin'. For example, the proton and the electron both have quark/antiquark pairs in their make up, giving a direct polarity of charges within the particle, and depending on the orientation of the particle when entering a vertically polarized magnetic field the particle will 'spin' up or 'spin' down. This allows many quantum effects to be based on a real physical cause for their orientation or movements.

### 3.6 Normalization

Early endeavours to apply quantum mechanics to electron orbitals worked quite well when looking at the hydrogen atom but raced off to infinities when applied to atoms larger than this (similar to the ultraviolet catastrophe), quantum physics only being rescued by a mathemagical trick called renormalization. It was always hoped that this would be a temporary solution that would later be better explained however, it is still haunting physics today, 75 years after its introduction.

By creating all of the subatomic particles out of composite photon/gluon particles of light, including the electron, we are able to finally solve this problem. The electron will not smear out over space to infinity at high energies, but like the proton and neutron is held in check by the positively charged gluons at the center of the particle.

### 3.7 Energy from the vacuum – Free energy is not free

A massive amount of science, effort, and investment is going into 'free energy' proposals, including nuclear fusion and plasma technology, in order to extract energy from the quantum vacuum, the electromagnetic field, or from particle physics. However, these technologies have not been very successful to date, and very rarely seem to move forward from pilot projects or the concept phase.

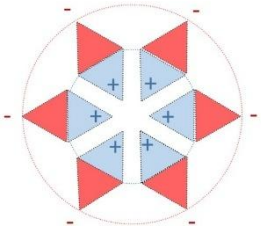
Science needs to follow nature, and nature does not create imbalance without endeavouring to move back to balance as quickly as possible. Simple free energy cannot be created out of the vacuum, simply because the quantum vacuum does not hold either 'infinite energy' or have direct access. Energy out of the zero-point will have to come from negative space, which does have almost infinite energy, but this creates an energy debt between this space and counterspace that needs to be paid back as quickly as possible, it is neither free nor readily available.

Energy is always conserved in nature so our best technologies will always follow that of nature, we need to look deeper, and further, into what the natural world is, and ask again how we can co-create our future on planet earth together with nature, and out into the cosmos as responsible guardians of the future.

## 4. Light and the Information Field

Light is not just transferring energy (heat and light) from a source to a receiver (sink) it is also carrying information, and this is just as vitally important as the energy, maybe even more important. Currently science has given an almost impossible task to the point-particle called the photon to carry out all of the functions associated with light, making it a particle of almost magical proportions and opening up the question of just how this one particle would be doing all of the work we associate with light.

By giving light a composite two-part structure made up of the positively charged gluon and the negatively charged photon and grouping these pairs together into a particle with eight gluons and eight photons (eight photon/gluon pairs in a 3D cubic geometry) we are instead creating an immensely powerful composite particle that may just be up to performing the tasks we currently give to light. However, we take this another step by also assigning to every particle of light (and in fact every particle) a zero-point, or focal point, that is anchored in a space-time matrix.



*Particle of Light*

Each particle of light is now able to carry information in all directions of space and time, not only informing itself of where, and when, it is within its environment but also informing other particles, objects and beings. This is the powerful tool that is needed to create the world that we currently know and to allow it to evolve in an intelligent way. It is the foundation of all of existence and makes intelligent life possible. Light (and its shadow, darkness) is everything!

### 4.1 The Information Matrix

There is only one level lower (deeper) than that of light and that is the zero-point field, the quantum vacuum, the oneness, universal cosmic consciousness, or ether. The zero-point opens out into a place outside of space and outside of time (in the form of the torus, a bubble of pure energy and information), but still part of existence, it operates with a completely different set of laws, about which we are only just starting to learn. However, directly on the other side of the zero-point, for particles that are able to pass directly through the zero-point, is what is defined as negative space or counterspace, a mirror opposite of our space in every way, and the balance to our world. It is a real world similar, but opposite to this world and the smallest particles of these two worlds are able to pass back and forth through the zero-point as required, larger objects are not.

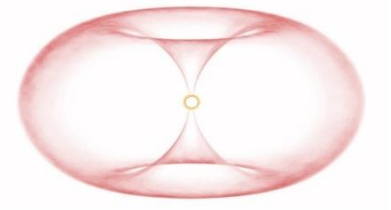
Every composite particle, including the particle of light, has its own individualized zero-point focus, and all zero-points (connecting via the aether or quantum vacuum) make up the zero-point field. This zero-point field is in effect a rigid structure, or matrix that occupies all points in space. This is also essentially an information field that allows information to be created, stored, transferred, and analyzed or used at all points of the matrix. An information matrix.

### 4.2 Quantum Harmony - Energy Conservation Law and recycling

Energy conservation is the law that powers the universe, and it tells us that the movement of energy (in whatever form, including light) throughout the universe and locally at every point in space is a highly balanced harmony, with energy being transferred, transformed, used, and reused over and over in whatever form and quantity as needed. Energy can never be destroyed, it simply changes form, it is always conserved, and the zero-point information matrix may just be the structure that coordinates this process at the smallest of scales. It may be that energy conservation is not just a law of nature but that it is built into the structure of the quantum world, organizing, structuring and powering all of space.

Particles of light are the main powerhouse of our solar system with vast quantities of light leaving the sun every second to be used here on earth and throughout the other planets. With a photon/gluon structure to light it is now possible that each and every particle of light knows exactly where it is going when it leaves the sun, the exact path it will take, and what it will confront on the way, and this transfer of information along with energy makes light the powerful governing system of the solar system. Everything is recorded in light.

Most likely, but yet to be confirmed, is that large amounts of light reaching the outer edge of our solar system, the heliopause, is turned by the toroidal shape of the suns magnetic field to travel back around the solar torus and be recycled back into the sun via the opposite vortex cone of the torus, not just energy recycling on a large scale but also true energy conservation.



*Solar torus*

At quantum scales as well as cosmic scales the universe is much more finely balanced than we currently understand. Our universe is a perfect harmonic oscillator that never wastes energy, ever, and is constantly balancing positive with negative, whether it is between the positively charged gluon and negatively charged photon, the quark and

antiquark, the proton and electron, or space and negative space, the principle works perfectly at all scales. A perfect choreographed dance.

### 4.3 The Inclusion principle – Join the dance

Currently the Pauli exclusion principle is used to organize electrons into their correct orbitals within the atom, each electron only being allowed to sit at one 'address' within the electron orbitals and all other candidates being rejected. This rule is also applied to all Fermions, so the quarks will similarly be excluded from entry to the atom if they don't fit in on the day. It is a random selection process with no certain idea of what governs the quantum address that determines each particle's final home.

However, within the zero-point matrix and its structured geometry, the layout is already predetermined in the blueprint, and each particle always knows before hand where it will be needed. Building in this way is much more efficient, rigid, and precise. Our universe is more like a dance than a chaotic collision zone and becomes all inclusive rather than exclusive!

### 4.4 The Certainty principle - Absolute precision all the way down

As a result of using a probabilistic wave-function equation to describe quantum energies of electrons (and other particles), quantum mechanics was able to explain a lot of what the experiments were showing but traded this extra knowledge in for a blurry vision of actual events, this then becoming the uncertainty principle. That we were not only unable to predict events accurately anymore, and that it was not just a lack of accuracy in the measurements but was inherent in the way we were looking. When measuring one aspect of the particle with accuracy we automatically blur out the other aspects, this makes any accurate estimates of future events unreliable. But even though probability and statistics are very good when dealing with the immense number of events and particles involved in quantum actions, maybe this is not a good approach in the long run.

We need to recognize that an information matrix (the zero-point field) is extremely accurate and allows no room for any error or uncertainty, it is actually a perfect generator of certainty. All particles within the system know exactly what they are doing and what they are going to do next, and so it is us the scientists, who don't know. It is not only our current understanding of measurement technology that is preventing us from knowing, but also our use of statistical probability in our calculations. As we delve deeper into the information matrix, we may develop whole new ways of looking into the quantum world, involving not just high-tech instruments but maybe a combination of technology and intuitive consciousness. We will certainly need amazing new instruments to look down to this level, although larger particle colliders are probably not the way to go, due to the astronomical cost and their destructive analysis approach. A New Science will most likely lead the way.

### 4.5 How the real world actually is - In plain sight

The concept that the quantum world is quite different from the classical world (the real world, the world we live in) has been around for a long time now and many highly advanced experiments have been carried out to prove this. The problem arises when we are looking specifically at the two most commonly used particles in these experiments, the photon and the electron. These are both considered to be fundamental, or point-like particles (without internal structure), which means intrinsically that they have a very limited capacity for storing or transferring information.

For a long time, it was proposed that either these particles or the system itself had hidden variables that could step in and complement these particles when needed in filling in the gaps of missing information or faster than light communication. These hidden variables would be the only way to explain 'spooky action at a distance' and the other unexplainable quantum weirdness, and it was hoped that in time they would show themselves. However, in all of the quantum entanglement experiments performed since then, it has only become worse, it looked like the strange characteristics of quantum mechanics were here to stay, and we should get used to it.

Now, by giving the photon a partner particle, the gluon, and making this duo the foundation of physics at the lowest level, we finally have a new explanation for the strangeness of quantum theory, allowing us to extend the classical world all the way down to the zero-point. Nothing is hidden anymore, and the photon is shining its light on every particle in the universe.

Entangled particle pairs being created in specially designed experiments (and often in the real world) with opposite spin already know at the time of their birth where they will be travelling to, for what reason and what their final goal will be. This information is transferred to the particles by the gluons involved, as these particles are always traveling backwards in time. Information is always transmitted in both directions within the information matrix. By changing any parameter of the experiment at will (randomly and at high speed) simply changes the end goal of the experiment, and this information is passed back in time to the particles, they are always, and instantaneously in real time, informed of the antics of the physicists.

These experiments show us what we already see around us at the macro-level that what you see is what you get, there are no tricks or optical illusions in daily life or at the quantum level. Light has to operate, in real time, extremely accurately, and consistently at all times, otherwise our view of the world would immediately become blurred, smudged out, and unreliable. This is not what we see (not counting our own personal physical shortcomings of course). What we see in the world, every day, is always brought to us by particles of light operating in an absolute and pure way, over great distances (relative to the size of the particles of light) and with absolute precision.

Any distortion of this picture always involves a clear, and measurable, interaction of the light with other physical matter, and never due to a sudden breakdown in the principles of light or quantum weirdness. This is why we are always able to use technology to restore these distortions. In fact, we now use this absolute purity of light in our technology for transmitting and receiving information at light speed with absolute accuracy, even multiplexing and splicing large numbers of different signals in one fiber optic cable, without distortion or mixing.

### 4.6 Untangling the quantum world - and quantum information technology

Quantum computing is currently focused on quantum entanglement to create the qubit or quantum bit in order to escape the limitations of a two-bit (0,1) computing system. The qubit, even though still being a two-bit system, uses quantum entanglement to place this qubit into a quantum superposition, allowing the qubit to also be anywhere between the two boundary states. In theory this allows wave interference that can then be interpreted using probabilistic analysis. The current quantum computers are using everything we know about quantum weirdness to produce a cutting edge, if not futuristic, new form of computer technology. Also throwing in superconductors and super-cooled vacuum environments in order to avoid, at all costs, quantum decoherence, the bane of every quantum computer, as any form of environmental noise can very quickly decohere the superposition of the qubit dousing its unique abilities.

Physically and technically building a quantum computer, despite what all the hype is telling us, is an immensely challenging enterprise, as well as expensive and time consuming. In general quantum computing is far from reaching the hoped for supremacy in computer power. The pure technological challenges alone are far greater than most people realize with decoherence, and reliable input/output of information still not adequately solved. Or is this just a convenient smoke screen hiding a more fundamental problem; that of a misunderstanding of the quantum world at its core. At present quantum computer development is so expensive and uncertain that only the large tech corporations and government funded projects are still going ahead.

At the quantum level information is shared precisely in space and time between all particles, absolute certainty is always achieved at all times, and it is only our own macro-scale limitations that are showing us otherwise. Quantum superposition is much more of an extreme state rather than the normal state and occurs much less often than supposed.  Putting a quantum entangled particle pair into a superposition actually unbalances the system with rapid decoherence being nature's solution to the 'problem'.

The quantum world contains and uses immensely vast amounts of information but, this information is not receptive to macro-level manipulation, this does not say that quantum computers will not work, but merely that they may not reach the high expectations of their designers, or that they may require a complete rethink using new insights.

## Conclusion

The world of quantum physics is a very different world to that of classical physics, and it presents a very different, and non-intuitive view of reality itself. It has become an immensely complex construct that very few people understand, and no one can fully explain. The much hoped for marriage of quantum mechanics and general relativity (the quantum world and the world of gravity), creating a complete picture of physical reality, has not yet occurred and seems further away than ever. In fact, quantum physics is so different to what we see as reality, that it even declares physical reality to be nothing but an illusion, and classical physics is so different to quantum physics that it pronounces the quantum world to be spooky and weird. And trying to unite these two worlds at an even more exponentially smaller realm than the quantum realm, that of string theory, has also proved to be a dead end of mathematical folly.

This proposal for new a new theory of light steps aside from both of these descriptions of reality, our real visible world, and presents a wholly new model, it opens a whole new paradigm in physics, and all areas of science, it truly takes us outside the box.

By making negative space a real physical place (which no one has dared to do yet, not even Paul Dirac or Neil Turok), that is fully accessible for fundamental particles to move back and forth as needed, we create a dual world that is able to evolve, balance, fine tune, and support itself, without outside assistance, it is a world of give and take, of harmonic oscillation. There is no need for an observer, or director, and consciousness is allowed to develop as a free parameter within this dual world without the input of a higher order. It becomes a fully self-contained, fully inclusive, self-balancing, self-governing, and pure form of evolutionary existence, in a way that a unidirectional evolution (with its big bang beginning, and its cold and empty end) can never achieve.

The rules of the game are very simple and can be explained in easy-to-understand language without any complex mathematical formulas, to every level of participant on the journey. We are not just the observers of this adventure, but also the players, the judges and the co-creators of our own universe. It is at the same time our own individual quest and a collective endeavor. The final end goal of the journey becomes what we collectively create ourselves. In fact, the final outcome, whatever it may be, will likely be the input for the next world to come after this one.

What we have shown is that this new theory takes the quantum wavefunction (wave particle duality, Schrödinger equation) of quantum mechanics and assigns it to real particles (wavelets) that are able to create real waves. Giving us a real-time description of the quantum world that allows it to fully react with the real world in known and understood classical ways. Every particle, from the photon/gluon particle of light to the subatomic particles making up every atom, has structure and a dual nature, being made up of both negatively charged and positively charged components. This allows particles,

whether travelling in free space as waves, or oscillating within an atom, to carry both energy and information in both directions of space and time.

The quantum world is no longer a chaotic and entangled world of superpositions, dependent on statistical probability waves and an external observer, but becomes informed, precise, inclusive, certain, and balanced. Particles no longer travel randomly, colliding and crashing at will with other particles, but enter a dance, in a fully choreographed world, they know at all times where they have been and where they are going. This is creative evolution, it is our world, and we are in it now!

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## Appendix 1 - Zero-point physics

Every point in space is a zero-point with the potential to create, store, and recycle energy, information, and matter. All of these points are connected via the zero-point field, and the potential of this field is known as the zero-point energy or quantum vacuum. The zero-point is the crossing point between our space (positive space) and negative space (a real world with opposite characteristics of our space). Every particle of matter created out of this zero-point field will have a dual nature of positive and negative charge, due to the positive and negative states of the field. Our universe is a universe of duality. Because this concept is so important and is the governing factor of the whole of creation and evolution, we are calling this new branch of science Zero-point physics.

Space, in all its aspects, can be described as the empty gaps, the blank pages between the particles, the atoms, the planets and the stars. It is empty and void, filled only with potential, possibility, that we call energy, the quantum vacuum (the zero-point field or the aether). This is the stage on which everything occurs. Everything that takes on a physical state, physical matter, appears on the stage of space via the zero-point field. Every physical particle has a zero-point, also automatically giving them the dual nature of plus and minus charge. All particles appearing in space are connected via this zero-point into the zero-point field and to all other particles (this is the quantization of space or the zero-point matrix).

The potential of space is primarily regulated by the electromagnetic field, a specific type of potential field, extending between particles to fill space, and this potential is always relative to the quantity, position and movement of the particles in the field. The electromagnetic field is regulated by the smallest particles, the photon/gluon particles of light (which are also the only particles with no real mass). Every location in space between particles has the potential to create matter (new particles) via the zero-point field and will always firstly create a photon/gluon pair as the fundamental particle of matter. All subatomic particles are then created within this fundamental particle.

### A.1 Quantum geometry

Zero-point physics is a geometric model. The basic underlying geometry is the torus and all points in space are toroidal (every particle has its own zero-point, and the particle geometry is a torus). Every object in space, from the basic photon/gluon particle of light all the way through to galaxies and the universe itself, is toroidal.

At the foundation of the toroidal geometry is the cube (three-dimensional space), and we propose that this geometry is not just mathematical in nature but also takes the form of physical geometry forming real energy vortexes and geometric combinations of vortexes that go on to create all of the subatomic particles. Three basic geometric forms, all based on the cube, provide this basic particle geometry, the octahedron, the cuboctahedron (octahemioctahedron), and the star tetrahedron [1].

The geometry of quantum field theory, using the non-abelian Lie groups U(1) x SU(2) x SU(3), can also be applied to give a mathematical representation of the geometric model. With the electromagnetic particles, the photon/gluon pair, represented by the 2D circle of the group U(1), conserving electromagnetic charge. The eight gluons and eight photons of a true light particle, represented by the 3D sphere of the group SU(2), conserving the weak charge. And the full particle combination of the subatomic particles, eight gluons, and eight photons (three quark/antiquark pairs) represented by the 8D hypersphere of the group SU(3), conserving color charge (strong force). Beautiful geometric symmetry at the quantum level.

In fact, we are also considering that the cubic geometry in our model allows the strong force of QCD to also be modelled using the 3D space of the group SU(2), allowing a much simpler mathematical model. We are, of course, including negative space as a real physical reality, and adding antimatter to all subatomic particles giving them physically positive and negative charges, which gives finely-tuned balance to all particles and simplifies dramatically the formulation of quantum mechanics. Matter and antimatter, and positive and negative charge, are distributed evenly (50/50) throughout both sides of the double vortex of space and negative space.

### A.2 Charge - Positive and Negative +/-

In this new theory we propose that charge is fundamental to all of physics, all the way down to the zero-point field and out the other side into negative space. In fact, we need to see the universe as a duality of positive space and negative space, divided by the zero-point field. In this way we finally give a true 'physical' description of charge. Whenever any particle is 'created' out of the zero-point field it will always appear as a particle pair with one particle initially appearing on the positive side of the zero-point, with a positive charge and the other on the negative side, with a negative charge. These particle pairs can then move as a pair into positive or negative space, creating a tension field, with a negatively charged particle in positive space always trying to travel back to the zero-point and cross back into negative space and a positive particle in negative space always wanting to travel back across the zero-point into positive space. Composite particles are not able to cross the zero-point as a whole and only the individual components of composite particles can do this. At all levels it is always this tension field between negative charge and positive charge (electrostatic and electromagnetic) that gives matter the appearance of being 'physical', you can never totally push two like charges together.

This creates an oscillation of charge across the zero-point as the tension between these charged particles tries to re-establish equilibrium. The further a particle is pushed (or pulled) away from the zero-point the greater the tension and the stronger the charge. Particles with opposite charges will attract (pull closer), and particles with the same charge will repel (push apart). At the subatomic level this is known as the tension

between the proton (+) and the electron (-) of the atom. Our first paper [1] shows how the proton consists of mostly quarks (+), and the electron of antiquarks (-). In this paper we will now propose that light is also a composite particle made up of particles of 'light', the photon (-), and particles of 'darkness', the gluon (+). Just like an atom that balances its positive and negative charges to become neutral, the particle of light also balances its charges to become neutral, or what we still currently call no charge.

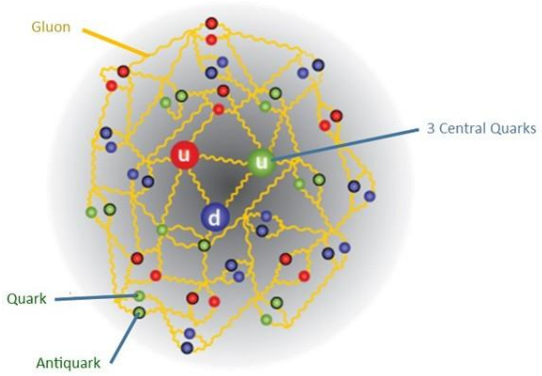
### A.3 Baryon symmetry, CPT conservation

At the quantum level, all particles have a geometric symmetry and also a balance of charges, the particle of light being composed of equal numbers of positively charged gluons and negatively charged photons and the atom balancing the positively charged nucleus with the negatively charged electrons. We are also proposing that zero-point physics also fully conserves the CPT (charge, parity, time) symmetry in the universe, and to do this we need to maintain a matter-antimatter symmetry, have real negative space, and the reality of fundamental particles travelling forwards and backwards in time. No other model of the universe has achieved this yet.

In this model the quarks and antiquarks are incorporated into baryonic particles, the protons, and neutrons in a 100% balanced way. They are made of equal numbers of quarks and antiquarks, matter and antimatter, just as the Dirac equation shows us. As the building blocks of all atoms, they are also the building blocks of all of what we call matter, and all of life, including us. All atoms in the universe are made of 50% matter, quarks, and 50% antimatter, antiquarks, giving our universe a natural balance, and a baryon number of 0, the symmetry of matter and antimatter that we have always expected to see.

We have now arrived at the point in particle research where a much deeper understanding of the proton and the neutron, and eventually the electron, is necessary in order to go further than the current standard model which always shows just 3 quarks in each particle, the baryons. This has also restricted quantum physics to calculating all characteristics and interactions using only this model. However, it is quite possible to have up to 6 primary (valence) quarks, three pairs, in these sub-atomic particles, including antiquarks, without annihilation. That the electron also becomes a composite particle made up of quarks and antiquarks, rather than an elementary point-particle of unknown origin, can then also not be ruled out. Each sub-atomic particle will also have a torus-shaped energy field that may contain additional gluons and quarks, real and virtual, in a supporting role.

New research is already showing that these particles contain much more than just the standard 3 quarks, including many quark-antiquark pairs. In this modern view of the proton, from the German Electron Synchrotron DESY, they show the gluons (yellow) and the quarks (red, green, and blue) in a chaotic tangle of real and virtual quark-antiquark pairs around the central persistent quarks [8].




*Quark/antiquark subatomic particle*

The neutron (0) is the most perfect of the three sub-atomic particles. It represents nature in its most balanced and structured form and shows why this particle is always used to hold balance in the atom between the other two particles, the proton, and the electron, positive and negative. The neutron is made up of 3 quarks and 3 antiquarks, 6 in total, in perfect balance. In fact, the gluon equilibrium at the heart of the neutron has all 6 quark receptacles filled (3 quark-antiquark pairs). If we do the baryon number calculation, we get:

B = ⅓ (3 - 3) = 0.

Which gives us a meson, rather than a baryon, however this baryon number of 0 tells us that the old model is focused on a 3-quark theory. However, we do need to consider that this new model works differently, and we need to look at charge *e*, rather than baryon number, giving each quark a ⅓ charge we get:

Charge *e* = ⅓ (3 - 3) = 0.

The proton (+1). This sub-atomic particle carries the positive charge of the nucleus and achieves this by being made of four quarks and one antiquark. Because this is an odd number of quarks, we can still classify this as a baryon, and this particle, called the pentaquark, has already been discovered in experiments [7]. If we look at the baryon number, we find:

B = ⅓ (4 - 1) = 1.

And charge: *e* = ⅓ (4 - 1) = +1.

The electron (-1), in zero-point physics is also a composite particle, and is made up with an internal structure of four antiquarks and one quark. This clearly makes the electron the opposite of the proton and gives it a structure that makes it possible to define its characteristics as a sub-atomic particle and its interaction with other particles within the atom or between atoms.

This sub-atomic particle carries the negative charge of the nucleus and achieves this by being made of four antiquarks and one quark. Because this is an odd number of quarks, we can call this a baryon. If we look at the baryon number, we find:

B = ⅓ (1 - 4) = -1.

And charge: *e* = ⅓ (1 - 4) = -1.

A classical three-quark baryon has a baryon number of +1, making it matter, a three-quark baryon with a baryon number of -1 would be antimatter and doesn't exist in a matter universe. In zero-point physics the geometric gluon equilibrium allows six quarks in the sub-atomic particles. The neutron has three quarks and three antiquarks with a baryon number of 0, the proton is a pentaquark with four quarks and one antiquark and a baryon number of +1, the electron is a pentaquark with four antiquarks and one quark and a baryon number of -1.

When the completed atoms are composed of these sub-atomic particles we find the smallest atom, hydrogen 1, has four quarks in the proton and one in the electron plus one antiquark in the proton and four antiquarks in the electron:

Hydrogen 1, B = ⅓ (5 - 5) = 0.

The next atom, helium 2, has eight quarks in the two protons, six quarks in the two neutrons and two quarks in the two electrons plus two antiquarks in the protons, six antiquarks in the neutrons and eight antiquarks in the electrons:

Helium 2, B = ⅓ (16 - 16) = 0.

Next is lithium 3:

Lithium 3, B = ⅓ (24 - 24) = 0.

As a last example we can look at carbon 6, and the isotope carbon-14 which has two extra neutrons in the nucleus:

Carbon 6, B = ⅓ (96 - 96) = 0.

Carbon-14, B = ⅓ (108 - 108) = 0.

A geometric zero-point universe maintains baryon symmetry without exception and is always in balance.

### A.4 Time

At the start of time, and the start of space, at the big bang, charge, parity, and time (CPT) were in symmetry. However, they now appear to be asymmetrical in most aspects, especially time, as it is very hard to argue that it could be reversable. We are going to show that our universe still has CPT symmetry at the fundamental level, and that this is

in fact essential for it to still exist. It also saves a lot of work that has been going on trying to find the best solution to symmetry breaking and still hasn't been solved.

Quantum Geometry has shown that our universe conserves baryon symmetry, that it is made up of equal amounts of matter and antimatter, and that this also brings with it the reversibility of time. Antimatter passing through space will have to travel backwards in time. We can show that light also travels as Time. Time is created by the synchronization of light. This is why it is a constant speed, c. The local zero-point of the system, the Sun, creates and radiates light, these quantum packages of light travel at light speed and are also the speed of time, the tick of the system clock. Light synchronizes all zero-points in the system by traveling simultaneously both forwards and backwards in time within the complete system. Photons traveling forward in time and gluons traveling backwards, in anti-time. Quarks and antiquarks are also able to travel in both directions of time, however all particles larger than this are caught in the tick of time and entropy.

Photons stretch the etheric sheaths of the sun out into space, the light cone. Gluons provide a return path, grounding, back to the sun. Photons are radiating and gluons are attracting, a matrix forms between these two forces, the zero-point, or quantum vacuum, made up of all the zero-points within the system. This matrix weaves a network, or fabric of space and time, called QuanTime.

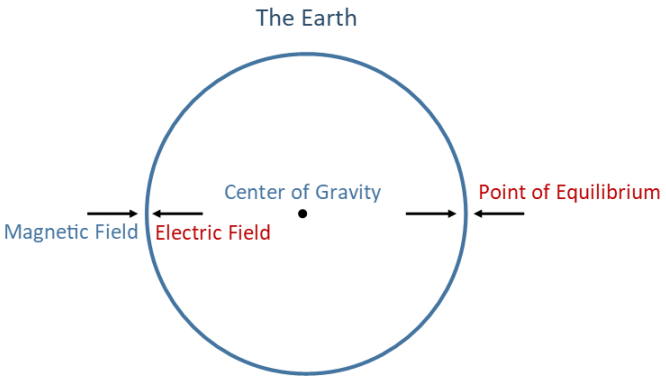
The speed of light is the escape velocity of the solar torus, of space. Energized photons (non rest mass photons) travel in time, towards a target, while the gluons travel backwards in time towards the source. A photon never leaves a source without already knowing its target! Particles are the physical stepping stones (the physical medium) that energized light (frequency) travels in, via the light ether, a non-zero field, that we know of as electromagnetism.

### A.5 Gravity

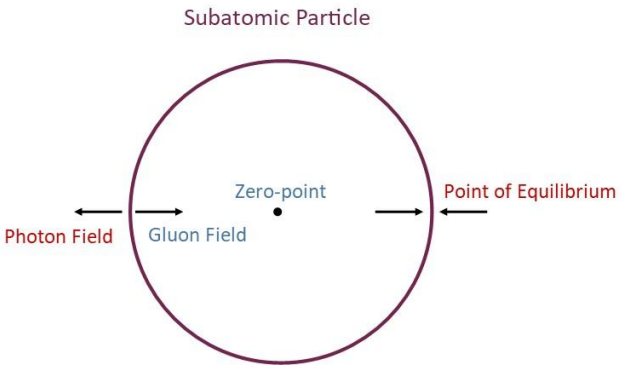
Unifying gravity into zero-point physics will not be realistic if we are only using the theory of General Relativity. However, we do not believe that the geometric curvature of space time is the principal description for gravity, and we propose that gravity is a real force as it has always been considered, up until the introduction of General relativity.

Gravity, as a force, must come out of the interaction of particles at the fundamental quantum level. Gauss's Law for Gravity describes a physical gravitational field associated with particles and larger objects, and although it is equivalent to Newtons Law of Gravity it deals directly with flux through a closed surface and comes from Gauss's Flux theorem for electromagnetism. It is the closest that science has come to declaring gravity to be an electromagnetic phenomenon.

It shows that the gravitational field is focused at the surface of a sphere when related to a round object (the earth, sun, stars and planets), as this is the balance, or equilibrium point of two forces operating in opposite directions, and that the flux of the gravitational field at the surface of the sphere is proportional to the mass of the object.




For a subatomic particle the center of gravity is the zero point of the particle and the point of equilibrium is the outer shell of the particle, the balancing point between the gluon field and the photon field which is the equivalent of the magnetic field and the electric field of larger objects, such as the earth, as these are all made up of the same subatomic particles.




The gravitational field of the Earth is made up of the combination of all of the zero-point effects of all of the particles making up the earth. These are all focused on the zero-point of the Earth, which is also the center of gravity and the actual center of the Earth. The center of mass of the Earth is the point of equilibrium, of the outward pushing electric field and the inward pulling magnetic field, and it is found at the surface of the Earth. Because smaller objects, such as people, have a much smaller mass, the equilibrium point between a small object and the Earth is very close to the center of the Earth. We will 'fall' or be attracted to this point, and only the physical surface of the earth prevents this.

Even though the force of gravity is directly proportional to the mass enclosed by an object it is actually the flux (surface integral) of forces over the surface of the object that

is creating the force, and that flux is directly created by the electric and magnetic fields generated by the particles making up the object. At the scale of the subatomic particles this is directly related to the photons and gluons making up the particle and the electric and magnetic fields that they are generating.

Gravity is then effectively the pull of all particles back towards the zero point (the attractive force of negative space on all particles in positive space, which we call the force of magnetism) being balanced by the radiating force pushing particles away from the zero point (the repulsive force of negative space on the negatively charged outer shell of all subatomic particles, which we call the electric force). Gravity now becomes a real physical force (which is then balanced by the force of levity which also becomes a real force) and this can only become possible when we make negative space a real world and balance space with negative space via the zero-point.

### A.6 Mass

Even though we assign mass as a value to all physical objects, including particles, this value is not intrinsic to the objects themselves but comes as a result of external forces. This has been a problem in physics for a long time, how do particles acquire their mass (and therefore all physical objects), and current quantum physics endeavours to assign a Higgs field to all of space as a solution, although not being fully satisfying.

Once we assign every particle to a zero-point in space we are balancing it with negative space and giving it mass. This is shown by the two fundamental particles at the foundation of all composite particles, the photon and the gluon, as being the only particles having zero rest mass. These two particles bind all other particles together and connect them with the zero-point field. All other particles are composite particles created out of these photon/gluon particles of light, and it is only when adding the quarks (both quarks and antiquarks) to these particles of light that the particles take on mass, which can also be seen as the charges of quarks and antiquarks interacting with the charges of the photons and gluons containing them.

Because all composite particles contain both quarks and antiquarks (matter and antimatter) they are encapsulating a tension field that prevents the particle from ever being at rest. These tension fields (quantum harmonic oscillators) are constantly holding the quarks and antiquarks in vibration with each other and the zero-point field (in essence these particles of frozen light are vibrating at the speed of light within the particle). This gives every particle an intrinsic inertia with respect to the zero-point of the particle and to the zero-point field. This is what gives every particle an inertial mass, a resistance to acceleration by any outside force (any force external to the zero-point of the particle).

It is the zero-point of the particle and its anchoring in the zero-point field that gives every particle its inertial mass and therefore also its relative gravitational mass. This is also

why the gravitational force of an object (made up of all the zero-point inertia of the particles making up the object) is always proportional to the mass of the object. It is by making negative space real that the zero-point connection between space and negative space is able to make all particles real and give them their mass.

### A.7 Energy

With all particles directly coupled to the zero-point field via their own zero-point we have shown how this gives them an intrinsic inertial mass, an inertial mass directly related to the internal components of the particle oscillating at the speed of light. This oscillation can be explained by the fact that any photon/gluon particle of light entering space via the zero-point field is traveling at the speed of light, and when that particle of light takes on matter, by including quarks and antiquarks within the light particle (becoming a particle of matter), that light speed is transferred to the particles within the particle of light. The light particle becomes matter and slows to much less than the speed of light thereby confining the external speed, in relation to space, to an internal energy.

By freezing light into matter, we are trapping the momentum of the light particle as internal energy, we are giving the particle mass (an internal inertia, vibrating at the speed of light) and this mass is directly related to the energy of the light particle when it was travelling at the speed of light. This is why the internal energy of a particle is so immensely large and why it has to be equal to the mass of the particle multiplied by the speed of light squared.

Because all particles are connected to the zero-point field (quantum vacuum energy) they always have access to the energy of the vacuum and will use this ultra-short-term energy buffer to maintain stability and symmetry within the system. This is the true meaning of the law of Energy Conservation. Any system or process will always conserve its energy, all be it in many different forms, with small gains and losses being finely balanced by the zero-point field. We need to consider that the zero-point field is connected in two directions, both to space and to negative space, these two worlds are constantly and extremely finely balancing the energy flow between the worlds and in and out of the zero-point field. This involves a constant and harmonic oscillation, a breathing in and breathing out of energy.

The zero-point field has the potential for unlimited energy however any single particle will never take any more than it needs and will always give back excess energy, with the overall potential stored in all particles connected to the zero-point field. Energy stored and circulating in the zero-point field itself is limited, and of a pure form (ether energy) of a number of different types, it is nothing like what we see in the physical world and involves a completely different concept than that of physical energy.

## A.8 Fine structure constant

All particles connected to the zero-point field are oscillating in size, they are effectively breathing in and breathing out (at the speed of light), in balance with the zero-point field and in tune with the particles of negative space. The zero-point of every particle is connected in two directions, both to space and to negative space, and this is finely balancing the energy flow between the two worlds and in and out of the zero-point field (quantum vacuum) itself. This change in particle size then has a very well defined lower and upper limit, due to the precision of movement at that scale and the difference between these two limits is the fine structure constant 137.035999.

You could call it the breath of God, as the coupling of our space with negative space has a ripple effect through all of space on this side of the zero-point. The fine structure constant is then the ratio (dimensionless quantity) between all aspects relating space to negative space; positive and negative charge, photons and gluons, quarks and antiquarks, and the oscillating interaction between these two spaces (worlds). Then it is also easy to see how it turns up as the coupling constant between the elementary charges (the charge +1 or -1 associated with the subatomic particles) and the electromagnetic field, or the oscillation between the electrons and the protons within the atom. Thus, we also find it as the ratio between the strong force and the force of electromagnetism.

## A.9 Cosmological constant

At present there is huge discrepancy between the observed values of the zero-point field density (the smallest value of the cosmological constant) and the much larger theoretical value (that is maybe even 120 orders of magnitude higher) of zero-point energy suggested by current quantum field theory. This then is also known as the vacuum catastrophe.

However, although every point in space has the potential to tap the zero-point field it will only do this if there is a particle at that point. This limits the energy coming from the zero-point field. The electromagnetic field limits the energy needed by each particle. It is not the quantum vacuum, or zero-point field, that has infinite energy, but negative space itself that has unlimited energy, which of course it is entitled to use itself.

Because the cosmological constant appears in the calculations of the idea of an expanding universe, we need to also look at its influence at the cosmological scale. A favorite contender for an explanation of an expanding universe is the Lambda CDM (cold dark matter) theory that has dark energy as the lambda component (cosmological constant) and dark matter as the CDM part. Zero-point physics sees the universe itself also breathing out and breathing in in a harmonic oscillation, removing any vision of an endless expansion, and certainly not a runaway expansion towards a cold, dark and empty universe.

We also need to consider that because the zero-point field is connected in two directions, both to space and to negative space, these two worlds are constantly and extremely finely balancing the energy flow between the two worlds and in and out of the zero-point field. This will also mean that any endeavor to tap the zero-point field for 'free energy' will need to keep this fine-tuned balance in mind, it may make most technology intended to generate energy out of the vacuum very difficult to design, if not impossible as this was never the intention of nature. Energy flow between the two worlds, and the quantum vacuum, works purely on a give and take basis, the two worlds compliment each other and the energy from one world can not be freely drained into the other, any borrowing of energy from the other world will need to be paid back, and mostly this needs to be done as soon as possible to avoid problems.

### A.10 Conclusion - Matter is Light

To round off this explanation of zero-point physics we can look at what exactly physical matter really is, is it an illusion or is it real? By introducing negative space as a real world that is mirroring our space, we have created a real physical energy oscillator, resonating back and forth between the two worlds. All particles are anchored in this zero-point field via their own individual zero-point, they are also oscillating in tune with the zero-point field and this physical oscillation gives every particle a quantum harmonic resonance.

In fact, it is here where a random potential can be seen as a harmonic potential at the vicinity of a stable equilibrium point (zero-point), making it one of the most important model systems in quantum mechanics. Because it is one of the only exact analytical solutions in quantum mechanics, it may greatly simplify the basic formulas needed for zero-point physics [6].

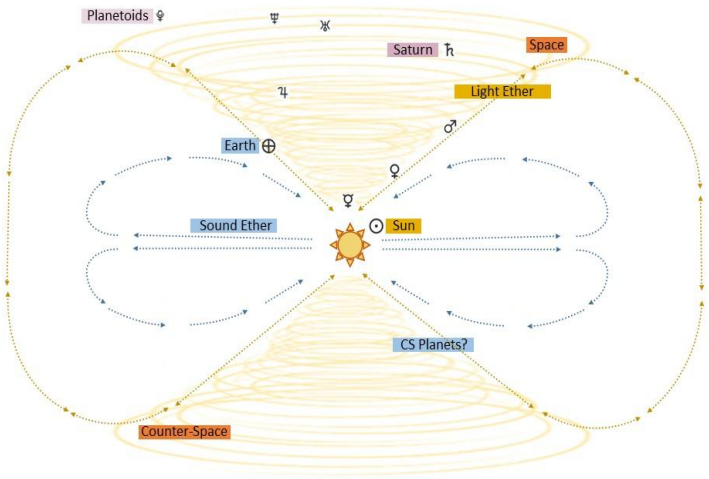
Matter is light 'frozen' within a quantum container, where the container is light itself, the photon/gluon double vortex (torus). The particles of 'matter', the quarks and antiquarks are held tightly within this container, creating mass, they become particles of matter making up the subatomic building bocks. These subatomic particles are then also building the atoms, with a positive nucleus holding its negatively charged electrons within a tightly held toroidal form and making up the full table of elements, everything we need to go on and make all of the molecules of chemistry and the life of biology. Everything we need to build a living breathing universe. It is all geometry and resonance, harmonic oscillation at every level of creation.

In the end it may be that the photon and gluon really are the most fundamental particles and that this duo are at the foundation of all matter. This may also explain the quantization of vibrational energy needed to push an oscillator from one energy level to the next, a fundamental requirement of physics. And where a photon is the carrier of the electromagnetic field, the carrier of vibrational energy is called the phonon. Which encourages us to rename the gluon of zero-point physics the phonon and thus maybe removing some of the confusion in terminology with current quantum mechanics.

Whereas photons are in effect quantized light, phonons are quantized sound waves (vibration), which is exactly what the gluons are doing in every composite particle. Our particle of light would then become the phonon/photon particle, and the voice of God said, ‘let there be light’.

## Appendix 2 - The Zero-point Sun. Solar Torus.

Our local system, the structure in which we live and operate, is the solar torus, the Sun. This system is a fully harmonized, self contained, resonating unit, within a greater system that we know of as the Milky Way Galaxy. At the center of the Sun is the local zero-point that harmonizes and synchronizes the system all the way out to the edge of the Solar System, the heliopause. The Sun sits in the middle of the matrix, at the crossing of the two main lines, giving a space and counterspace aspect to the Solar Torus, a double vortex much like an hourglass, with one light cone, or funnel facing upwards and the other downwards representing the two vortexes of the torus.




*The Solar Torus Vortexes*

With the upper vortex (Space) containing the planets of our Solar System, and the lower vortex giving the possibility of a second system of planets (Counterspace solar system), which actually very likely exists, in order to balance our planetary system. All of matter (and antimatter) sits within the two vortexes, the main body of the torus is only pure energy, the quantum vacuum, zero-point field, or ether.

The Sun can no longer be described as a nuclear sun but instead becomes a matter-antimatter reaction, with matter (Space) on one side of the Sun, and antimatter (Counterspace) on the other side. Most importantly, the Solar Torus becomes a self-contained whole, with light leaving the sun in the upper vortex (light cone) circulating

around the outside of the torus to re-enter the sun via the lower vortex, and light leaving the sun via the lower vortex re-entering via the upper vortex. Almost all light leaving the sun will be recycled using the torus, there is virtually no wasted energy, just as nature sets up most systems within the universe. This curving of light around the Solar Torus is created by the immense magnetic field of the sun, that stretches all the way out to the heliopause. It still takes light, at the speed of light, approximately 3 days to make this journey from north to south or south to north.

From this toroidal theory of the Sun, you can see how the zero-point of the Sun becomes our local zero-point that governs the speed of light and synchronizes all lesser zero-points within the system in time, Absolute Time. The Earth, operating within this system, has its own zero-point within the center of the Earth and every object or being on the earth also has its own lesser zero-point, all the way down to the atoms and the sub-atomic particles. All of the zero-point centers of these beings make up the central zero-point of the earth, that also becomes the center of gravity of the earth. All of the zero-points of the planets, moons, comets, asteroids, and other objects within the Solar Torus make up the center of gravity, the zero-point of the Sun.

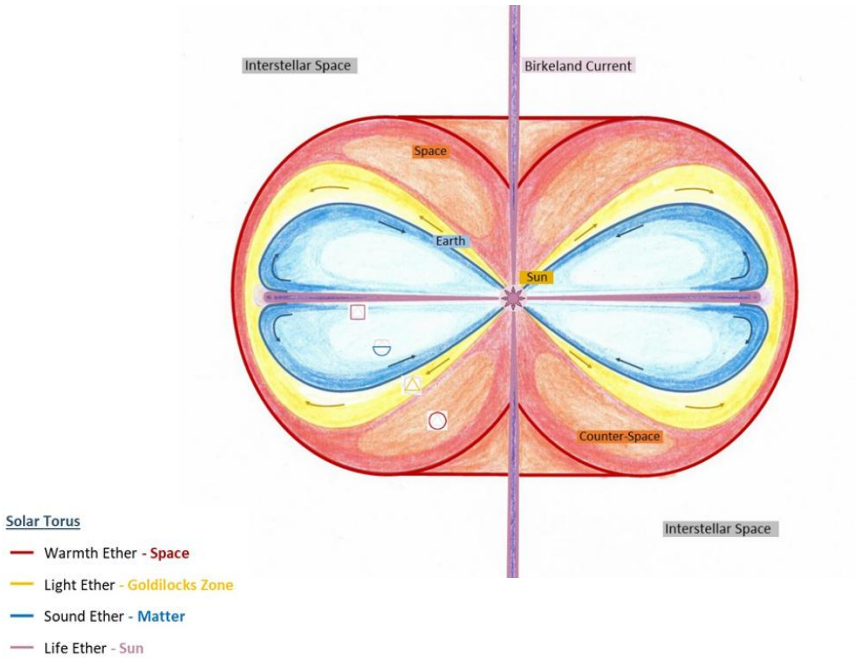



*Figure B.2 – Solar Torus Energy Fields*

Leaving the Sun at its north and south poles is a narrow, highly focused beam of light and energy, known as the Birkeland Current, that connects the Sun energetically with the planets within the system, and the Sun itself with its nearby stars, and the network of stars connected with the central zero-point of the Milky Way Galaxy.

The Sun is our local source of energy, fueling everything that happens within the Solar Torus, including everything on our own planet. It governs not just the rotation of the planets, but also the speed of light, and most importantly the quantum tick of Time for

every lesser zero-point within the system. The Sun holds both sides of the torus in perfect equilibrium and harmonic resonance in a cycle of breathing in and breathing out. All energy, photons, gluons, electrons, and atoms needed to maintain this equilibrium are supplied by the Sun, via the matter-antimatter reactions of the Sun, and all energy not used by the system is always recycled back into the Sun.

Pure warmth and light, photons and gluons, can be exchanged by both sides of the torus, however, everything of a physical nature, everything made of atoms or subatomic particles of matter (protons, neutrons, and electrons) must remain on the matter (space) side of the torus and everything made of anti-particles (anti-protons, anti-neutrons, and positrons) must remain on the antimatter (counterspace) side. At the surface of the Sun itself there is a continuous matter-antimatter reaction that can be seen as the powerhouse or cauldron of warmth and light energy supplied by the Sun.

As the Sun itself moves through the galaxy it draws the planets along with it in a beautiful spiraling of planetary paths, the dance of the planets that is also choreographed by the Sun. This should also mean that the counterspace planets, on the counterspace side of the torus, would need to be pushed ahead of the Sun, which is quite counterintuitive, however, this is not what actually happens, as the counterspace planets are antimatter planets (not a good place for us to visit directly), which means that they are travelling backwards in time, from the past to the future in their time but from the future to the past in our time. This is why Absolute Time is so important, all zero-points, whether on the space side of the torus or on the counterspace side must be synchronized. The tick of time is a pendulum swing between time and ant-time, past and future, and we are always in the present, the now, where past and future are always in balance, along with space and counterspace, matter and antimatter, quarks and antiquarks, photons and gluons, light and darkness, electricity and magnetism, gravity and levity, entropy and syntropy, and masculine and feminine. We live in a world that has no one-way arrows, everything is in balance, everything. This is the world of QuanTime, the world of Quantum Geometry.