

Space as the Building Block of Dimension-An Applied Overview

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Abstract

Energy and Matter are the same thing. Space and Energy are the same thing.

Time and change are different. Time is an effect of rearranging dimensions at the range between photons and Neutrons. Change is quantum change, 1, 2, 3, etc.

These conclusions give rise to a different view of Atomic and molecular Structure and force.

- A.** All dimensions present (at least 5) exist together within the matrix of the universe and in any regional matrix, subgroups of these dimensions are present.
- a.** Space has no dimension, precharge exists in a single dimension, prephotons exist in two; neutrons (complete matter) in 3 and black holes in 4. Between prephotons and neutrons are all of the states which we see directly and are manipulated by particle accelerators even though prephotons, precharge and space all exist as quantum states below that level.
 - b.** The definitions of time and space mean that exchanges of information state (ct state) between space and prephotons occur independent of time. Time as we experience arises essentially at the photon state (10^6 prephotons) and ends with compression to neutrons (10^{16} prephotons).
- B.** All change is quantum change in response to a single variable leading to the universe existing as a series of quantum states or snapshots. Force and time are effects based on the resulting dimensional changes.
- C.** Time and change are different. Changes in the single variable leads to time, but time is not required for that underlying change nor does it affect that change.
- D.** Time is an effect like force and dimension of the quantum change between states some of which occur without a time-based reference giving rise to features like wave - particle duality and the impression of charge among other features. By way of example, a particle can only be in one place for each change in x. But once time is applied those multiple locations of the particle give rise to the wave-features of the particle and to its "appearance" as a "Schrodinger's cat type particle," one that is two states at once. At once refers to time, but many changes in x can occur affecting low ct state particles position, before any changes in time.
- E.** Space is made of the same type of information as all other states (energy, matter, black holes) which are folded from space based on exponential compression/folding.

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F. Photons, Electrons and protons are examples of transitional states (ct3-ct4) between prephotons (ct3) and neutrons (ct4), Atoms (after hydrogen) and molecular states through neutron stars are transitional states between neutrons (ct4) and black holes (ct5) along with intervening transitional ct3-ct4 states.

Keywords: Energy, Matter, Space, Universe, Quantum, Photons, Electrons, Protons.

The Denominator of pi and Quantum Snapshots

When you look at a physics equation, the multiple terms must have some common feature or they cannot logically be solved with equalities.

When we see $E=mc^2$ in some way each of those terms has to be the same as all of the others. This short paper will explain how Energy, Mass and the speed of light can all be the same thing. It will explain how all the features in a more complex equation, like Schrodinger's $(H(t)|\psi(x,t)=i\hbar d/dt|\psi(t)=(-\hbar^2/2m)d\psi/dx^2 (\text{kinetic})+V\psi)$ are all the same thing as, for the equation to be logical, they must be.

This paper is written for the layman and more detail can be found in the references. This paper presents a model, not a theory. A theory is an idea, a model sets that idea out with specific detail. All of the features of the universe discussed in this summary exist around us.

The core of the universe is the denominator of pi, called Fpix herein and is built from -1 according to this formula $([-1^x \text{ plus } 2x(-1)^{x-1}])$. The solution for this equation where $x=0$ is 1.

Built into each solution for fpx is a fuse. This fuse is defined by the evolving value of the solution to fpx.

As the count (x) increases by a quantum amount, a new solution is generated. Each solution starts with the value of 1, but we will start with -3 as the first non-zero solution to fpx. The value of the solution (here -3) is the fuse between the current solution and the next solution to fpx. So, after 3 changes in x, the first solution (-3) changes to (positive) 5. After 5 more changes in x the first solution changes from 5 to -7 and so on. By the time there are 8 changes in x, there are 8 solutions, each having a fuse burning at a slightly different rate and each having a positive or a negative value.

A broad but precise calculation of the number of data points at the universe at this time is possible. At least for the visible universe it is less than $5.2916E+153$ and the average fuse length is equal to around one-half this number.

The center of the universe has the slowest fuses, the edges the fastest, and where we live in the middle the fuses are in the middle range, something less than $\frac{1}{2} 5x10^{153}$.

There are around 10^{44} changes in x every second. At the level of space, solutions change every two beats relative to the adjoining fuse. As the universe is folded, however, very distant changes in fuse state are brought together.

How do We Get from Space to Matter

The transition from space to matter is mathematically controlled by folding which is also called compression:

There are two parts to compression:

- Compression states and
- Hinge States

Specific equations exist for compression:

Hinge State solutions: $[2f(n)-1]^{[2^n-1]}$ also called Hinge solutions

Compression State solutions: $2f(n)^{2^n}$ also called compression solutions

Polynomial approximation features heavily into the observed universe. Hinge states are not directly visible in scale analysis for this reason. Hinge states are considered theoretically necessary to provide a mathematical basis for folding to get compression and they appear in the sin equation for early values of dimension with a pi numerator between -1 and 1.

Compression of space to precharge occurs as the alignment of positive and negative space (ct1) reaches 256. This is done over four stages with a hinge state in between each stage. These stages are referred to as folds because they are basically folding of one state and one dimension to get the next.

Each set of folds results in a force and this first fold from non-dimensional space to precharge gives rise to the force we know as gravity, the transition from non-dimension to one dimension. The unfolding which occurs simultaneously is anti-gravity which is also called dark energy.

Since time does not exist at this level of change, we only experience the net effects. Hence, when you step outside, you are experiencing gravity and anti-gravity, but only the net effect over very many changes in x before time gives the effect to gravity.

The earth represents the continual folding of space into net gravity. So why don't we get heavier all the time? The answer turns out to be something we observe, something that keeps us alive. It is discussed later.

Net Decompression

Since the universe is expanding, we know that the solutions at this moment in time are "net decompression" solutions of ct2 to ct1. Regionally on earth, we have net compression. Eventually, the earth will decompress and eventually the universe will re-compress. Evidence shows we will go from the current big-bang to a big collapse in about 9 billion years.

The compression rates are shown in Table 1.

N is the number of the compression state and corresponds to the numerator for pi for that dimensional state. The denominator is the derived from fpx for all states.

Each force related to each change is suggested, but a more detailed analysis is given later. Each state folds the next lower state, hence, what a pre photon is 1.7 million ct2 states, it is 43 million ct1 states because each ct2 state is 256 ct1 states.

Table 1: Compression states.

f(N) - CT State	2*f(n)	2^n	2f(n)^2n	Dim State	Force prior to	ct1 states
			Next lower states			ct1 states
1	2	2	4	Space-0	current	4
2	4	4	256	precharge 1	Gravity	256
3	6	8	1679616	prephoton	Charge	429981696
4	10	16	1E+16	Neutron/Matter-3	Energy/Strong/ time	4.29982E+24
5	16	32	3.40282E+38	Black hole-4	Weak/very Strong	1.46315E+63
6	32	64	2.13599E+96	Universe 5	Unknown	5.2916E+153

Table 2: Different Hinge ratios.

N	ct2 states changing	2f(n)^2n compression ratio	ct1 units CT1 units per quantum	State	3 Hinge 2F(X)-1^[2^N]-1 Hinges	3/4 hinge to compression Hinges	27 times no of ct2 Hinges
1		4		space			
2	1	256	256	charge	27	192	27
3	1679616	1.68E+06	4.30E+08	photon	78125	3.22E+08	4.53E+07
4	1.68E+22	1.00E+16	4.30E+24	matter	2.06E+14	3.22E+24	4.53E+23
5	5.72E+60	3.40E+38	1.46E+63	black hole	4.31E+37	1.10E+63	1.54E+62
6	2.07E+151	3.62E+90	5.29E+153	U-PART	2.94E+89	3.97E+153	5.58E+152

Table 3: Force table.

CT State	2f(n)^2n compr	Dim State	Force prior to	AuT Force spew	Aut Strength	change range	PreAuT recorded
1	4	Space-0	current				strength range
	256	1	Gravity	G/AG		ct1-2-1	1 inf-g
2	1679616	2		PreCharge			
		ct2-3	Charge	net sum precharge	variable	ct3-4-3	inf-EM1
3		3		Prephoton		ct2-3-2	
	10^12-10^13	ct3-4	P-E interact	net compression	4.5*10^12-10^16	P-N	Prot/Elec:abs
4	1E+16	ct3-4	Energy//time	Atomic Prot/ Neut abs	e=mc^2 (10^16)	N-P	10^16
	Transitional	ct4-5	PostAtom	N-P-N weak	10^25	N-N	10^25 10^-15
	Transitional	ct3-4-5	Forced molecular	N-P-e-P-N:EM	10^36	N-P	10^36 Inf-EM3
			strong	N-N 2 arms	10^38	N-P-E	10^38 10^-18
5	3.4028E+38	ct5	Very Strong	ct5 collapse	10^96	N-BH	
6	2.136E+96	ct5-6	Non-Weak	ct5toct6	10^96<	BH-U	
	1.6796E+22	at ct4	3*4				
	5.7154E+60	at ct5	3*4*5				

Proposed Hinge State Structure

A discussion of hinge states is outside of this summary presentation, but a mathematical chart of them is worth discussing, particularly because the math of hinge states proves important in atomic structures (Table 2).

A Look at Gravity

What Figure 1 shows is one graphic model for the development of Hinges for ct1 to ct2 states. It begins as just a negative value above two positive values for space. The earliest hinge could, for example, arise as 5,-3,2.

There are two "iterated functions" in compressive folding: $n1*n2=n2$ and $2f(N)^(2^n)$.

Folding occurs as the first iterated function:

- 4 ct1 space states,
- 4 x 4 (16) folded space states,

- 64 (4 x 16) folded ct1 states, and
- 256 (4 x 64) folded ct1 states to form a single pre-charge state.

Iterated functions give rise to fractals which are important to the construction of the universe.

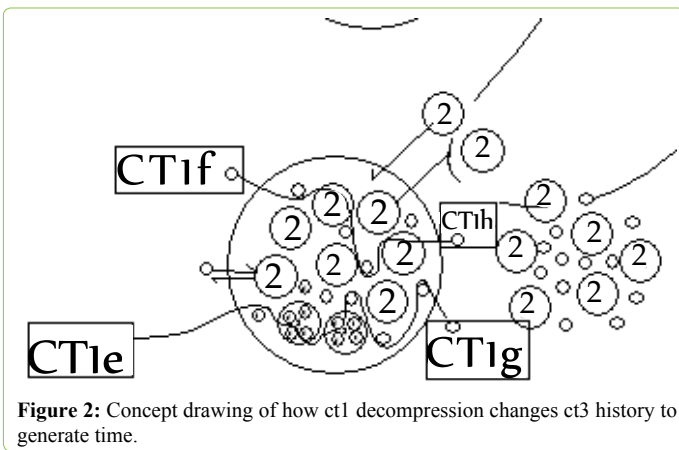
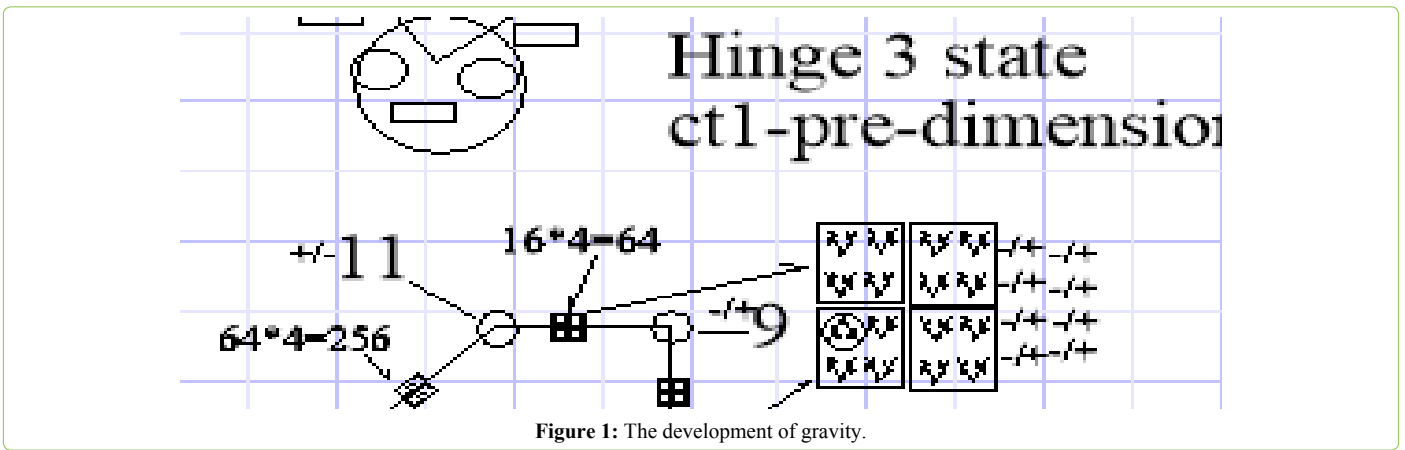
Strength of Forces Reflecting AuT

Force Table is shown in Table 3.

AuT initially attempted to work with the strong, weak and electromagnetic force as set out in pre-AuT physics. That effort is partially abandoned.

While those forces appear, pre-AuT physics accepts force as a third system in the universe, whereas AuT sees force merely as the result of folding of dimensional states.

What is beautiful about this chart is that it shows the relative strengths of the strong, weak and gravitational force



precisely as they appear in physics. Simply by applying the math of folding, the observed forces are recreated!

This is not true of the electromagnetic force which appears stronger than the model suggests. Here, AuT provides a theory which is not modeled as yet. The theory is that charge occurs as a result of the pre-time folding of ct2 to ct3 (or the unfolding). As the charged particles are brought together at the ct4-5 transition stage they are viewed as electromagnetic fields and the ct4-5 concentration makes them appear stronger than the quantum features which make them up. Hence, they are much higher than the quantum value for charge, but a little lower than the strong force reflected by ct4-5 folding.

Range

Range is the easiest feature of force to deal with.

Dimensions increase and the amount of coordinated information exponentially increase with compression. The effective range of a force is reduced with an increase in dimension because only the higher states are affected. For example, the ct3-4 compression is only experienced within ct3-4 and within ct4-5. At ct2, it is not experienced.

The range is restricted to the compressed state on which the force in question operates. Since compression reduced range (added dimensions reduce space by compressing it further) the molecular range of the strong force and the weak force are both along the first ct5 arms where we live. The molecular range is more than the atomic range because

the force is “outside” of the direct ct4-5 alignment and involves transitional ct3-4 states (protons) which are less compressed.

The electromagnetic and gravitational forces are considered infinite. That is not considered accurate for several reasons and the two are dealt with separately.

Gravity involves a non-dimensional state (ct1 space). Hence it may appear infinite because it is not governed by time. In fact, gravity is finite because when ct2 unfolds, the folding that gave rise to the gravity turns into anti-gravity.

This brings us to the second reason they appear infinite.

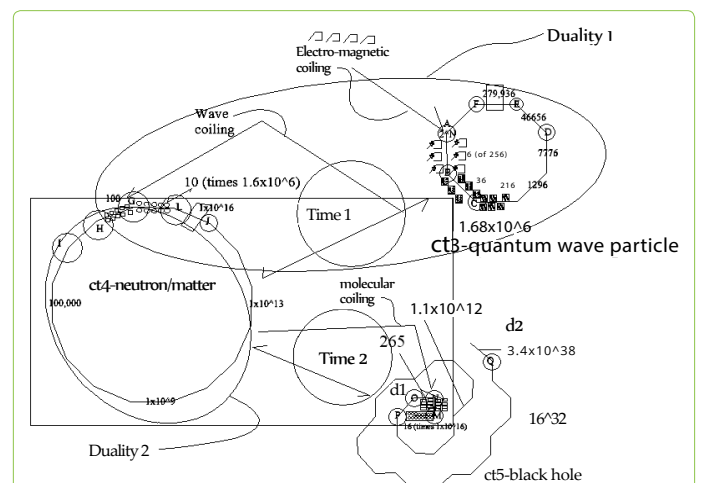
We only see the net effect of gravity and charge since those changes occur independent of time. We see “constant” gravity even though it fluctuates, and we see “constant charge” for the same reason.

Roughly, we can draw the different forces and their ranges as shown in Figure 4.

Time

This sounds confusing, separating time and change, so let’s look at what this means.

Figure 2 gives a representation of a cross section of a pre-photon. It is made of ct2 states folded together and these ct2 states are made of space folded together. As space moves



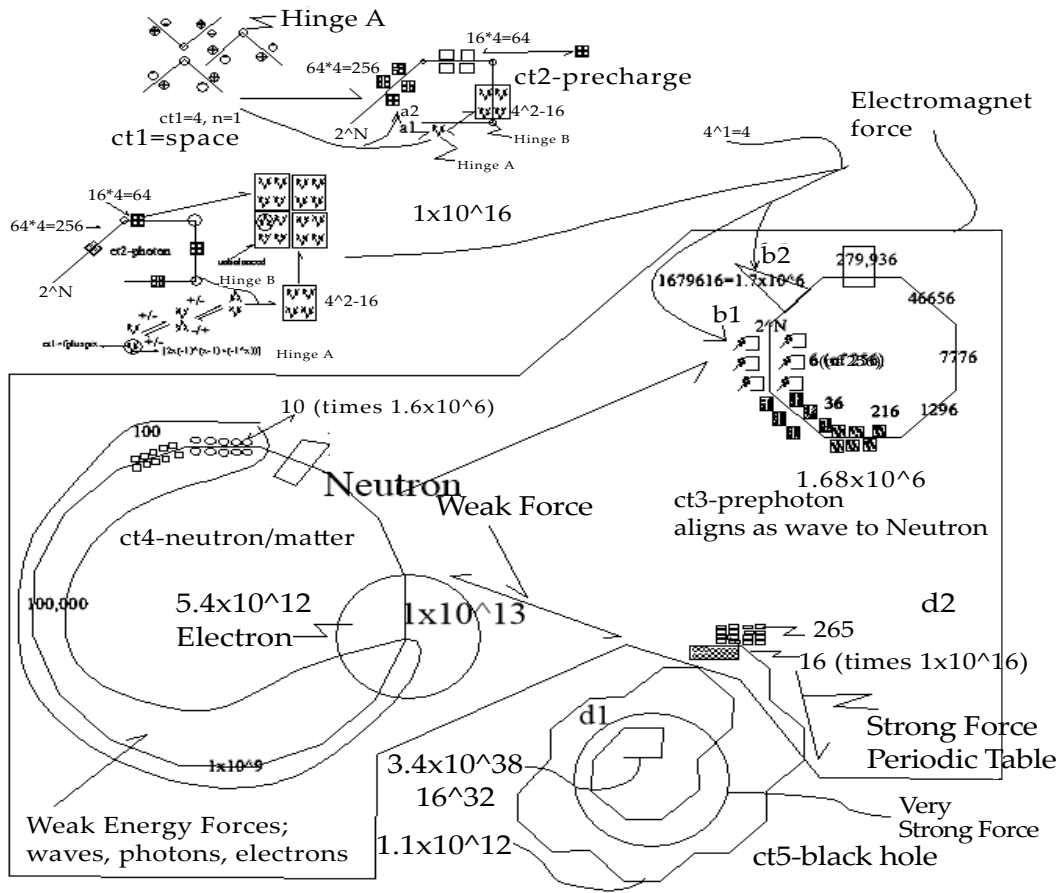


Figure 4: Compression information arms from ct1 to 5 with the associated force.

through the ct3, it rearranges the order within the ct3 state. Likewise, when ct3 unfolds to ct2 it changes and when ct2 folds to ct3 or unfolds to ct1 the structure changes.

What we call time reflects our ability to “see” the fluctuations in dimension. These fluctuations grow more pronounced with the greater folding between ct3 and ct4. We use digital programming, but when you watch a digital signal it is the same thing. The same feature that gives rise to the movement of the program over time is what gives rise to the time we experience (Figure 3).

Figure 3 shows how time builds from a poor source of saved information in ct3 states (time 1) to a more complex and full historical record (Time 2) incorporating wave states that exist in the ct3-4-5 matrix.

Our ability to manipulate the universe comes from the time ratio compared the ratio of change. We exist within a dimensional change ratio which allows us to manipulate the x-variable change outside of the bubble.

The speed of light is the maximum rate of change within the bubble. Since some changes (ct1,2 and 3) are completely or partially free of the dimensional changes giving rise to time, they are “faster than the speed of light,” and, as was mentioned before, we only see the net effective change of gravity and charge as a result.

Fractal Geometry

Very quickly I am going to apply this to what we observe.

First, we must experience the transitions of gravity to space around us. Do we see it?

The answer is yes. It is the velocity that moves us. Right now, we are traveling at 790,000 mph because of the unravelling of space.

We see “net” gravity. What prevents us from getting heavier and heavier is that for each of the pre-photon charge particles that protects us from cosmic radiation issuing from the earth, there are (see Table 1) 4.3×10^8 ct1 states that have to be folded just to keep us from getting lighter! Each of these escaping ct3 pre-photons has to be “carried” into space on a bed of ct1 states. You see we cannot “move through space” because it is too dense to move through. Instead, space pushes everything else around.

We see this same effect at different fractal levels.

At the atomic level, the neutrons absorb ct1 pulling the other neutrons, protons and electrons inward and “spew” out a field that keeps the atom in motion. The black hole does exactly the same thing. The Quasar is the black hole spewing out these higher states giving spin to the galaxy in which it sits.

A detailed discussion of how this creates the atomic and molecular structures we experience as the periodic table appears in the reference books referred to in this article.

Table 4: CT4 Transitional State Table. The observed “photon” is believed to be a T4, T6 or T8 state.

ct4t state	value	cube form	square
16	\$ 10,000,000,000,000,000.00	1E+08	215443.5
15	\$ 1,000,000,000,000,000.00	31622777	100000
14	\$ 100,000,000,000,000.00	10000000	46415.89
13	\$ 10,000,000,000,000.00	3162278	21544.35
12	\$ 1,000,000,000,000.00	1000000	10000
11	\$ 100,000,000,000.00	316227.8	4641.589
10	\$ 10,000,000,000.00	100000	2154.435
9	\$ 1,000,000,000.00	31622.78	1000
8	\$ 100,000,000.00	10000	464.1589
7	\$ 10,000,000.00	3162.278	215.4435
6	\$ 1,000,000.00	1000	100
5	\$ 100,000.00	316.2278	46.41589
4	\$ 10,000.00	100	21.54435
3	\$ 1,000.00	31.62278	10
2	\$ 100.00	10	4.641589
1	\$ 10.00		2.154435

Transition States

As I mentioned between the iterated function $2f(n)^{(2^n)}$ is the second iterated function $n1*n2=n2$.

In between the $2f(n)^{2^n}$, the $n1*n2=n2$ function gives rise to transitional states. We are obsessed with the transitional states between ct3 and ct4 because that is all we can see directly.

The electron is a transitional state between a complete and partial ct4 state at the twelfth level of compression (T12) in the 16 levels or folds of compression corresponding to 10^{16} compression in the compression equation. Because of relative mass issues, this T12 compression state exists within a T13 electron bundle of information. CT4 Transitional State Table is shown in Table 4. The observed “photon” is believed to be a T4, T6 or T8 state.

Odd and Even Exponent Interaction

Figure 5 shows an alternate view to the view shown in Figure 6 where the odd and even exponent results are shown separately.

Between Fractal stable compression states (even exponent states) there are hinge states (odd exponent states). The combination of these results with increased compression shown in the drawings above can be applied to generate drawings showing the interaction of these two mathematical results which is critical to the way that the universe displays information visible to us.

Higher compression states are folded within the lower compression states and this is the reason that black holes appear to disappear. They are folded into a fourth dimensional state (Figure 7).

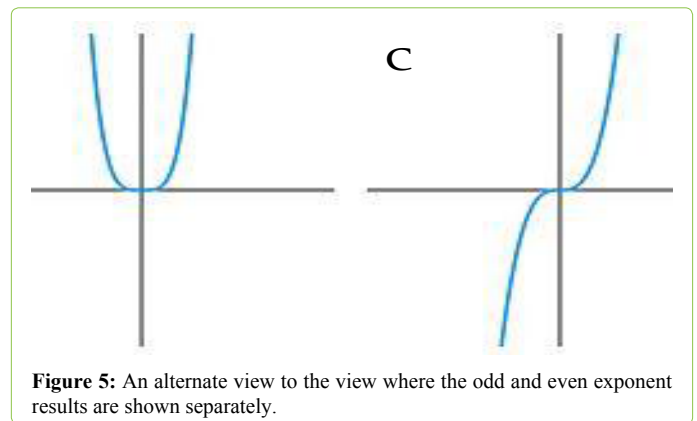


Figure 5: An alternate view to the view where the odd and even exponent results are shown separately.

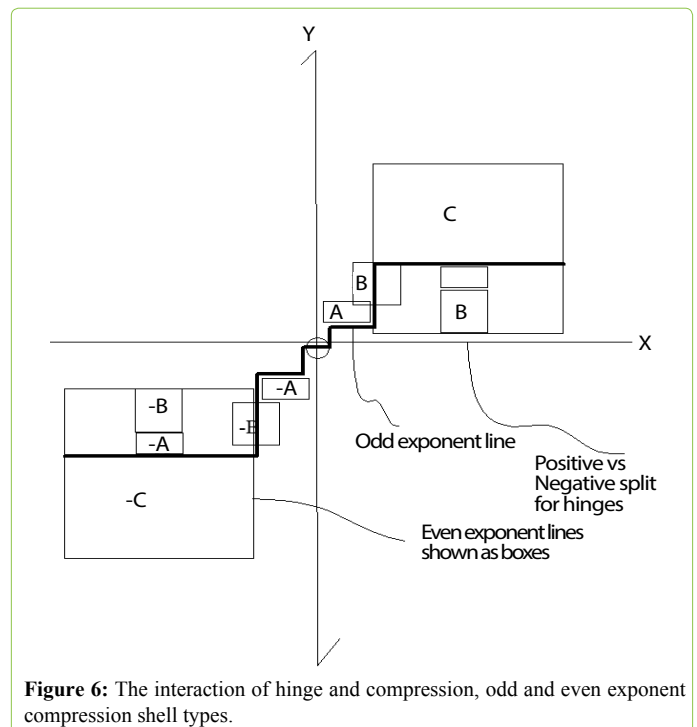
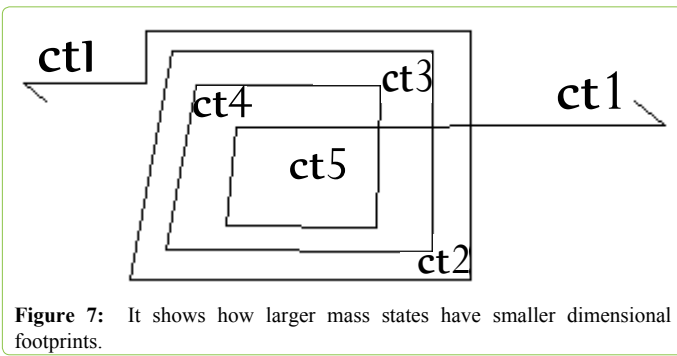


Figure 6: The interaction of hinge and compression, odd and even exponent compression shell types.



- **Fpix**-the denominator of pi and an equation that separates quantum points of the universe by transition fuses.
- **F-series**-The Fibonacci series $f(n)$; f-series compression refers to two times this number.
- **Exponential compression**- 2^n (see information arms).
- **Place**-Also compression state defined by the f-series raised to the exponential compression number which defines dimension and is also the numerator of pi for each compression state.
- **Information arms**-the number of folds represented by exponential compression based on pairing positive and negative lower ct states.
- **Transitional states**-compression states where the information arms are partially filled or separated by trapped states. Examples are waves, protons, electrons (ct3-ct4); molecules and post hydrogen atoms (ct4-ct5). Transitional states can be described as the transition between a lower state and a higher state. A ct3-ct4 transitional state, such as the electron and proton, are transitional states between waves and neutrons with too many intervening lower ct states to fully collapse into neutrons.
- **Fractal States**-Stable mathematical structures for transitional solutions (theorized) and include photons, electrons and stable atomic states.
- **Hinge states**-mathematical solutions having bending solutions, theorized to be odd exponent solutions to compression equations based on $(2^n)-1$ exponents.
- **Compression states**-mathematical solutions yielding compression theorized to be even exponent solutions based on 2^n exponents.
- **Force**-Changes over values of x in the filling of information arms viewed from a time-based analysis. Electro-magnetism is theorized to be the loading and unloading of ct2 states onto ct3 information arms; gravity ct1 loading/unloading onto ct2 information arms. Since the net effect of time free changes is observed from a time-based perspective, we "see" these time independent changes as forces.

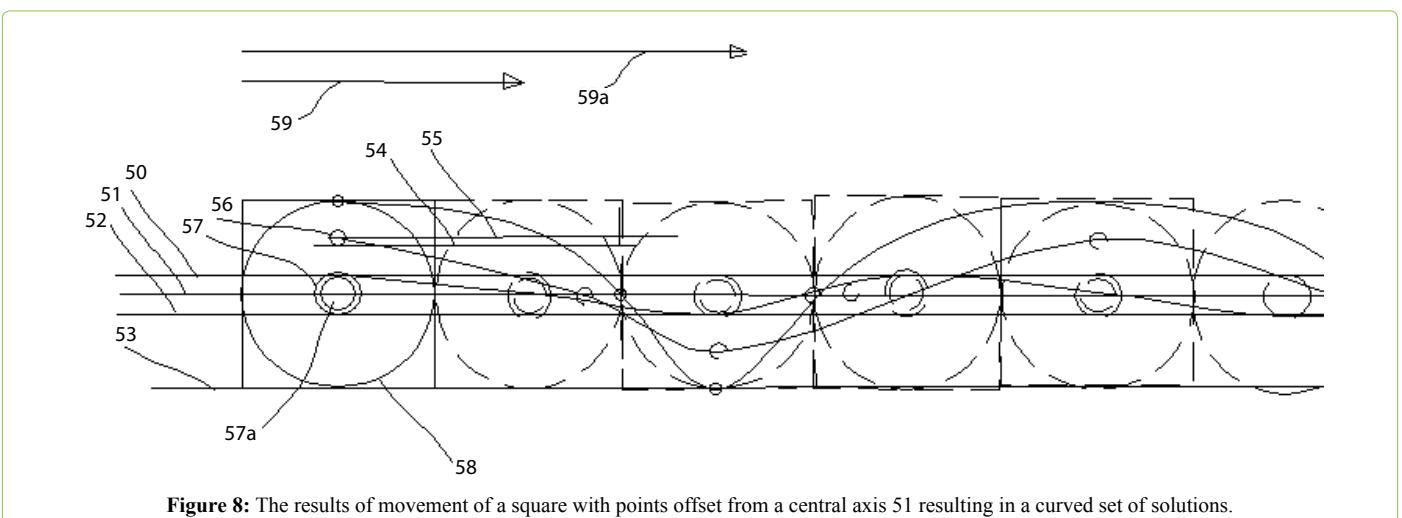
Waves

We know there are waves, but all this article has spoken about are quantum states. Even space is a quantum feature. So, what are waves?

Waves are merely another pre-time feature. A discussion of Schrodinger's equation would go a long way towards this, but that is the subject of another paper entirely. Suffice it to say that waves are nothing more than these quantum points revolving around a central line (Figures 8 and 9).

Nomenclature

- **X**-The count of the universe, counting in sequential quantum whole numbers (1,2,3, etc.). Each number represents a quantum instant for the entire universe.
- **Quantum points, quantum data points**-individual bits of fpix information which make up the universe. It is estimated there are at least 10^{100} of these defining everything from space to black holes. Each has a positive or negative charge for any value of x.
- **Fuse, transition fuse (tf)**-the number of changes in x between charge changes (fpix progression) for quantum points. The direction of changes at the ct2-ct3 level is believed to be the source of traditional charge with observed electromagnetism being the effect of this charge when compressed at the ct4-5 level and with ct3 prephotons believed to carry electromagnetic charge within space as a result based on whether it is loading or unloading ct2.



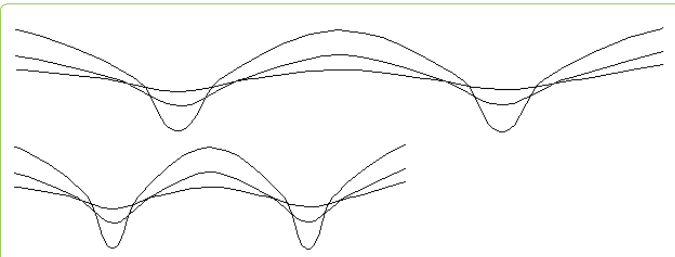


Figure 9: Compression of the wavelengths in line with the shorter time frames.

- **Light speed**-The rate change represented by a single ct2 state relative to a ct3 state viewed from a time-based perspective.
- **Time**-The ratio of ct1 states passing within a ct3-ct4-ct5 transitional state to ct1 states changing outside of the ct3-ct4-ct5 transitional state. This ratio is the source of velocity time dilation. The movement of ct1 states within the ct3-ct4 transitional state alter the arrangement of the ct3 wave states captured between the proton and the electron altering the history of points within the transitional state and the comparison of one collection of points to subsequent arrangements of the same points creates history.
- **Electron Bundle**-The waves states within ct3-ct4 and ct4-ct5 transitional states which hold the history for a regional mass.
- **Gravity**-the force created by non-dimensional ct1 solutions being "loaded" onto information arms of ct2.
- **Dark Energy (anti-gravity)**-the force created by non-dimensional ct1 solutions being unloaded from information arms of ct2. This may include releasing ct1 states trapped within a higher ct state matrix.
- **Ct1**-space defined by fpix sequential solutions
- **Ct2-precharge**-The first compression state, unique as coming from a non-dimensional state to a one-dimensional state. Note that the transition between ct1, ct2 and ct3 occur below the level of time and the transitions are therefore partially hidden from a time-based analysis.
- **Ct3**-prephotons
- **Ct4**-neutrons-Note that neutrons do not allow for significant passing of ct1 states within the ct4 state due to the compressed nature of the neutrons, so time does not exist within neutrons. The origin of ct3-ct4 waves and time which is the changes to wave forms over the ct4-5 matrix. Squeezing out the waves is the source of gravitational time dilation.
- **Ct5**-black holes. Molecular states are ct4-ct5 transitional states.
- **Ct6 and beyond**-theorized higher compression states that form when the total amount of information in the form of ct5 states is properly aligned and sufficient.
- **The big bang**-A misnomer referring to the time when the collection of compression solutions of ct1 states into higher ct states went from a net positive compression

state to a net negative decompressing state reflecting a greater release of ct1 states from higher states than the corresponding entrapment. We are approximately 13 billion years ($13\text{billion} \times 10^{44}$ changes in x) from the latest inflection point and approximately 7 billion years from the next inflection point where the universe will begin to contract again based on observed ratios (Algorithm Universe Theory Compendium).

Supplementary

This is a summary article. It gives applications to Physics associated with the article first published for peer review Journal of Physical Mathematics October 24, 2018 (Vol 9 Issue 4) "Algorithm Model defining Dimensional Features." References are made to "The Original Article" where appropriate. An update to the Original Article is currently being published in the Journal for Advances in Theoretical Physics. Reference to the updated article will be provided in the Drawings link provided below.

Details of this theory can be found in **Algorithm Universe Model, 2nd Edition** (hereinafter AUM or Algorithm Universe Model) and **Algorithm Universe Theory Compendium Volumes 1 6th edition and Vol 2 3rd edition** and references are liberally provided where appropriate. Those books are over 800 pages long together. Only the latest editions of these works correspond with this article.

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Author's Publications

1. Friedlander G (2019) Algorithm Model defining Dimensional Features. Journal of Physical Mathematics.

2. Friedlander G (2019) Algorithm Universe Model a brief description of the origin and effects of dimension.
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