

September 2025

ABSTRACT

The continued motivation of this work is to understand the role of information in our universe. The author believes there are two levels to nature 1) an information level 2) a correlated energy level where organisms evolve. This belief is based on data that leads to an information-based proton mass model. This model helps us understand quantum mechanics. It describes the probability waves that position protons in time and space. Duplication creates the huge universe around us described by a straight-line expansion model.

Artificial intelligence technology mimics some aspects of brain function and is causing some to question reality. The proton model consists of components that each have an information/energy interface. It is proposed that our viewing point is at the interface. The model consists of AI-like layers that multiply and divide probabilities. The probabilities can be interpreted as “language” that means the proton exists within specific dimensions. This agrees with the Copenhagen interpretation of quantum mechanics. Likewise, information layers (base pairs along the chain) associated with DNA protons contain probabilities that represent traits of plants and animals. The information level of nature consists of probability waves. They are the basis of memory, thought and reality.

Nature is amazing. How do flowers and babies develop before our eyes? When a flatworm is cut in half, why does it generate two flatworms? Where is the frog image stored when nature decides that a tadpole must now form a frog? Nature’s process is almost perfect and we say, “well it’s their DNA.” Right, but exactly how does DNA store plants and animal images and perform the incredible task of reproduction? This paper answers the question by showing how parent probability ratios are stored and remembered to accurately position cells for the next generation.

THE NEUTRON AND PROTON MODEL.

Neutron				Proton			
N values for mass	E=e0*exp(N)	N values for fields	E=e0*exp(N)	N values for mass	E=e0*exp(N)	N values for fields	E=e0*exp(N)
12.4319	5.076	10.432	0.687	12.432	5.076	10.432	0.687
15.432	101.947	17.432	753.291	15.432	101.947	17.432	753.291
12.432	5.076	10.432	0.687	12.432	5.076	10.432	0.687
13.432	13.797	15.432	101.947	13.432	13.797	15.432	101.947
12.432	5.076	10.432	0.687	12.432	5.076	10.432	0.687
13.432	13.797	15.432	101.947	13.432	13.797	15.432	101.947
Z components	E=e0*exp(N)	Z Field	E=e0*exp(N)	W components	E=e0*exp(N)	W field	E=e0*exp(N)
-10.432		-10.432		-10.432		-10.432	
10.507	0.740	10.507	0.740	10.408	0.671	10.507	0.740
10.333	0.622	10.333	0.6224	10.136	0.511	10.333	0.622
				0.296	2.72E-05		
90.000		90.000		90.0000		90.000	

Figure 1 Neutron and Proton model

In the model above N is information [Appendix 1]. The relationship between N and Energy is $E=2.02e-5*\exp(N)$ MeV [Appendix 1 “Energy data correlations with information”]. N for mass and N for kinetic energy are next to their respective energy values in the two columns of the left. In the right two columns N for two field energies are next to their respective energy values. Mass plus kinetic energy orbits the fields.

N values for mass	$E=e0*\exp(N)$	N values for fields	$E=e0*\exp(N)$
12.4319	5.076	10.432	0.687
15.432	101.947	17.432	753.291

The proton model is based on zero net energy. Mass plus kinetic energy offsets field energy.

	MeV			MeV	
	$E=e0*\exp(N)$			$E=e0*\exp(N)$	
N1=12.43	5.076	E1 ke	N3=10.43	0.687	E3 field
N2=15.43	101.947	E2 mass	N4=17.43	753.291	E4 field
	$E3+E4-E3-E4=646.96$				
	E2 mass		E1 ke	E3 field	E4 field
	MeV	MeV	MeV	MeV	MeV
	101.95	646.96	5.08	753.29	0.69
	$E2+Difference\ KE+E1$		753.98	$E3+E4$	753.98
	Energy is conserved since $753.98=753.98$				

Here are four layers of values like $12.432+15.432=10.432+17.432$ in Figure 1. The neutron on the left side of figure 1 decays to a proton, electron, and anti-electron neutrino on the right side.

Energy values from Figure 1 ($E=e0*\exp(N)$) above are arranged into columns below for clarity. The components above total the mass of the neutron and proton marked in red below (accuracy vs the Particle Data Group data is excellent). It is a particle-space model because it includes initial expansion kinetic energy 10.15 MeV and expansion potential energy 10.15 MeV. The energy $E2+E2= 10.15$ MeV is also fundamental to atomic fusion.

	MeV		MeV		MeV		MeV	
	Neutron Mass	Components	Neutron Field	Components	Proton Mass	Components	Proton Fields	
	101.947	Mass	753.291	Strong Field E	101.947	Mass	753.291	
	13.797	Mass	101.947	Strong Field E	13.797	Mass	101.947	
	13.797	Mass	101.947	Strong Field E	13.797	Mass	101.947	
	5.076	Ke	2.801	Gravitational Field	5.076	Ke	2.801	
	646.955	Difference KE			646.955	Difference KE		
	83.761	Difference KE			83.761	Difference KE		
	83.761	Difference KE			83.761	Difference KE		
	10.151	Fusion KE			10.151	Fusion KE		
	-20.303	Weak Field E			-20.303	Weak Field E		
					-0.622	minus quark mass		
accuracy vs PDG	0.622	adds to quark mass		accuracy vs PDG	-0.048	ae neutrino		
	-7.18546E-09		-0.118		-5.44E-05	Em Field +2	-0.118	
	939.5654133	939.565413 Neutron mass		938.2720814	938.27209			
PDG				PDG	2.72E-05	EM Field -1		
					0.511	Electron		
					0.671	.622+.048		
					0.11141	Kinetic E		
	10.15127081	KE Expansion			10.15	KE Expansion		
	10.15127081	PE Expansion			10.151	PE Expansion		
	959.8680		959.8680		959.8679		959.8680	

Figure 2 Neutron and Proton mass.

QUANTUM MECHANICS AND THE PROTON MODEL.

Wiki says this of the Copenhagen interpretation of quantum mechanics “the probability density of finding a particle at a given point, when measured, is proportional to the square of the magnitude of the particle's wave function at that point.

The proton model contains N values for probabilities ($P=1/\exp(N)$). Probabilities are waves that travel at C and obey Euler's equality = $f(\theta)=\sin(\theta)+i\cos(\theta)=e^{i*\theta}$ (also written $\exp(i*\theta)$) where the symbol i represents the imaginary number and theta is an angle around a circle with one real axis and one imaginary axis.

$$\text{Probability} = f(\theta)=\exp(-i*N)$$

or

$$\text{Probability} = f(\theta) =\exp(i*N).$$

Note: $\exp(\text{power})$ means the natural number e to a power. Example $\exp(-0.693)=e^{-0.693}=1/2$, where e is the natural number 2.712.

This can be compared to the Schrodinger equation [25]:

$$P=\exp(-i*1)*\exp(i*1)=1. \text{ The imaginary number separates 1 into two parts, i.e., } -i*i=1.$$

Energy E and time t are in the exponent, ($i*1$) where $1=Et/H$. Energy is E, time is t and H is Planck's constant.

The proton model is based on probability =1. Examine the sets of probabilities in Figure 1 for the proton. Probabilities for the left-hand side of the model (mass plus kinetic energy) are multiplied and then divided by probabilities for the right-hand side fields forming. The left side divided by the right side is a probability pair that has meaning which in this case is “Mass plus kinetic energy is orbiting field energy”. For the model, the probability is unity, but probabilities can represent anything in nature and are often not unity.

$$1=(1/\exp(12.43)*1/\exp(15.43))/(1/\exp(10.43)*1/\exp(17.43))$$

$$1=(1/\exp(12.43)*1/\exp(13.43))/(1/\exp(10.43)*1/\exp(15.43))$$

$$1=(1/\exp(12.43)*1/\exp(13.43))/(1/\exp(10.43)*1/\exp(15.43))$$

1/EXP(-

$$10.432)*1/\exp(10.408)*1/\exp(10.136)*1/\exp(0.296))/(1/\exp(10.33)*1/\exp(10.408)*1/\exp(10.33))=1.$$

The neutron and proton model are based on zero energy and probability=1. The probability pairs $p=1$ are multiplied down through the vertical axis of the table. Overall $P=1*1*1*1=1$.

Probability density function: Sum $f(x)$ over 0 to 1.

Probability density= Sum ($e^{(I \theta)}$) over one cycle around the circle. The point particle position is compared to the entire circle where the particle could be. The quantum mechanical explanation is that positions around the circle are juxtapositions of the possible particle locations. The probability waves in the proton model are “calculating” probability density for particles along a dimension.

With the discovery of the equation $E=2.02e^{-5}*\exp(N)$, the proton model indicates that there are two levels to nature 1) an information level and 2) an energy level. There are only protons, neutrons, electrons, light, bosons, a few anti-particles in nature and short-lived particles called mesons and bosons. I have thoroughly studied all these particles, and they all consist of precursors or components described by the proton model.

LESSONS FROM THE PROTON MODEL.

- 1) The defining relationship between energy and probability is $E= e_0*\exp(N)$. This was discovered in the data in Appendix 1. Probability is $P=1/\exp(N)$. Combining these equations yields the relationship $P=1/(E/e_0)= e_0/E$.
- 2) We can learn nature’s probability language by studying the model. A language combines meanings with other meanings. Probabilities are useful because they compare something to another thing of the same type. Probabilities produce meaning with a top part of a pair divided by a bottom part. The pair division $P=e_0/E$ assigns meaning to energy. The pair for a quark in the model is:

$$(1/\exp(12.43)*1/\exp(15.43))/(1/\exp(10.43)*1/\exp(17.43))=1$$

Refer to lesson 3 below for more detail. The pair in the model is a probability (with an E meaning of particle) multiplied a probability (with E meaning kinetic energy) divided by a probability multiple (with an E meaning of two fields). The proton model has layers, each with a meaning. The layers of the model are probability multiples followed by division to form probability pairs. Our brain assigns meaning to the probability pair for each layer. The first three layers means three quarks with kinetic energy are positioned in color fields and a gravitational field. The proton layers are a language that fully describes the proton and electron. Probability language is useful, and nature uses very compact language. Above $P=p*p*p*p$ with each $p=1$ is probability language.

- 3) Details: Using the above language, the model teaches us what the expression below means:
 $1=(1/\exp(12.43))*1/\exp(15.43)/(1/\exp(10.43)*1/\exp(17.43))$

N=12.43 is associated with kinetic energy and N=15.43 is associated with a quark mass. N=10.43 is associated with a component of the gravitational field and N=17.43 is associated with a color field. The model tells us that the multiple $(1/\exp(12.43))*1/\exp(15.43)$ means mass with kinetic energy. The left side of the model obeys the Pauli exclusion principle that states “no two particles can occupy the same space” and it is different that the right-hand side. Probabilities associated with a particle with kinetic energy is the top part of the pair and when divided by $(1/\exp(10.43))*1/\exp(17.43)$ it means the particle is orbiting two interpenetrating fields. There are three sets of P=1 probabilities in Figure 1. We can associate each with one of three dimensions. They each contain gravitation components N=10.431 associated with a gravitational field energy. Together they define the gravitational field (Appendix 6 title “Origin of the gravitational field G”). The expression above positions 3 quarks in 3 dimensions with a gravitational field. Quarks are most of the proton mass and it is gravitationally attracted to other protons. The expression contains the values for probability density that the proton exists within a certain space.

example of probability multiplication			
(adding logs are multiplying probabilities)			
N	1/exp(N)	multiply	result
10	4.54E-05		1.38879E-11
15	3.06E-07		
25	1.39E-11		
	addition then 1/exp(N)		

- 4) The expression below is the fourth layer of the proton model.

$$1=1/\text{EXP}(-10.432)*1/\text{EXP}(10.408)*1/\text{EXP}(10.136)*1/\text{EXP}(0.296)/(1/\exp(10.33)*1/\exp(10.408)*1/\exp(10.33))$$

The N value 10.136 is associated with electron mass (0.511 MeV). The N value 0.296 is associated with the electromagnetic field energy ($27.2e-5$ MeV). The overall expression is a switch that changes a neutron in a proton. It is in the proton position above. Here is the neutron position:

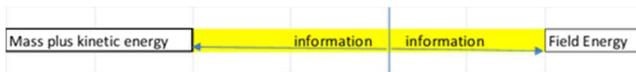
$$1=1/\exp(-10.432)*1/\exp(10.507)*1/\exp(10.333)/((1/\exp(-10.432))*(10.507)*10.333))$$

The N values in Figure 1 add to 90 for both the proton and electron. The mass for the neutron is larger than the proton by 1.293 MeV. N=10.333 is associated with 0.622 MeV and N=10.408 is associated with 0.671 MeV. The neutron loses $1.293=0.622+0.671$ MeV when the switch changes positions and becomes a proton, electron and anti-electron neutrino. Furthermore, the expression tells us when it switches. The difference 0.622 MeV minus 0.511 MeV = 0.111 MeV. The early universe has a temperature associated with 10.15 MeV. Expansion cools the universe and when it is reduced to 0.111 MeV, neutrons start to decay to protons. Electrons do not fall into orbits around protons until the temperature is much lower.

- 5) Adding N values down through Figure 1 yields N=90. In this model, N values are natural logarithms. When you add natural logarithms, you are multiplying probabilities. The proton mass plus kinetic energy column is extremely unlikely with probability $=1/\exp(90)$. The field is also unlikely with $P=1/\exp(90)$.
- 6) Nature consists only of neutrons, protons and electrons. The energy of these particles is associated with probabilities. When we understand their numerical language, it allows us to realize that probabilities, probability pairs and assigned meanings describe nature. We learn to associate meanings with numbers and meanings are the basis of thought. Another way of saying this is “we live in an information-based universe”. I believe it has two levels, an information level associated with our mind and an energy level associated with our body.

OUR VIEWPOINT IN NATURE.

It was proposed that our mind’s viewpoint is at the information/energy interface associated with X,Y and Z in the proton model.



More detail from the probability model is shown below.

information	energy	informatior	energy	
Proton m+ke		Proton fields		
$P=1/\exp(N)$	$E=e0*\exp(N)$	$P=1/\exp(N)$	$E=e0*\exp(N)$	
3.9891E-06	5.076	2.95E-05	0.687	X
1.98605E-07	101.947	2.69E-08	753.291	
3.9891E-06	5.076	2.95E-05	0.687	Y
1.46751E-06	13.797	1.99E-07	101.947	
3.9891E-06	5.076	2.95E-05	0.687	Z
1.46751E-06	13.797	1.99E-07	101.947	

Probability is $1/\exp(12.43)$, etc.

One proof of our minds position is that we are moving rapidly but our reference point stays inside our mind. At the X, Y and Z intersection of information and energy the mind uses the language above to perceive three dimensions (dimensions are information, not energy). Our mind, operating at the information level, “looks out” at outside protons. It uses probability language to interpret outside protons as energy.

COSMOLOGY AND QUANTUM MECHANICS.

Quantum mechanics describes small scale nature, but it is not being used for the big bang. Instead, physicists say that physics breaks down at a singularity. Some are questioning the

current Lambda CDM model of cosmology. In this model expansion is stretching of space. Physicists believe that there was an early brief period of expansion called inflation. It was supposed to keep different areas uniform that are more than C away from one another. But new maps show huge voids and non-uniformities. Also, observed primordial black holes and “red spots” do not fit current theories. I authored a paper entitled “Early black holes and dynamics of galaxy formation” [19] that explains their compatibility with straight-line cosmology [17][18][20].

The discussion on quantum mechanics must be applied to the beginning. Proton model probability waves can be used to understand the beginning. The information level consists of a probability wave with an imaginary axis and a real axis in the diagram below. In each sphere, time is around the circumference of the circle. They define what I call a cell. There are an enormous number of cells in the universe.

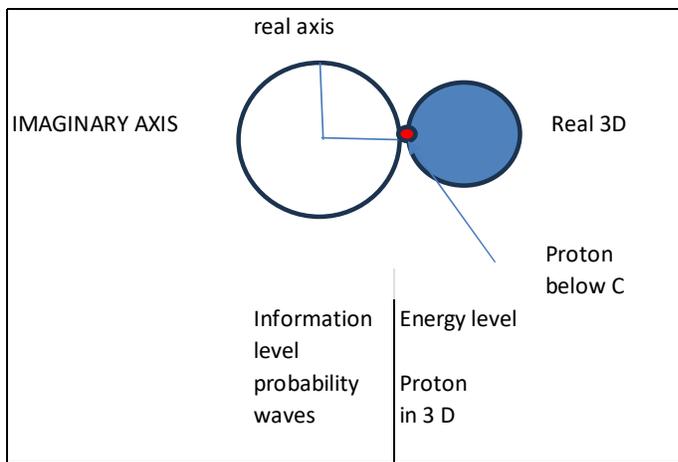


Figure 3 Definition of a cell.

Einstein held the view that properties like temperature were in the fourth dimension of an expanding radius vs time surface. In the diagram above, there is a fourth dimension that I call the information level of nature.

FUNAMENTAL TIME.

$E t / H = 1$ with $t = 2\pi r / C$ leads to $r = H C / (2\pi) / E = h C / E$. r = probabilistic position of the quantum particle. H = Planck’s constant = 4.14×10^{-21} MeV-second. $h = H / (2\pi)$ is Planck’s reduced constant [Wiki].

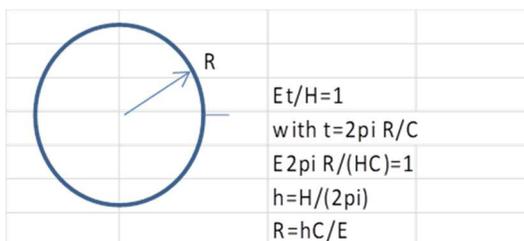


Figure 4 Derivation of equation $r = h C / E$

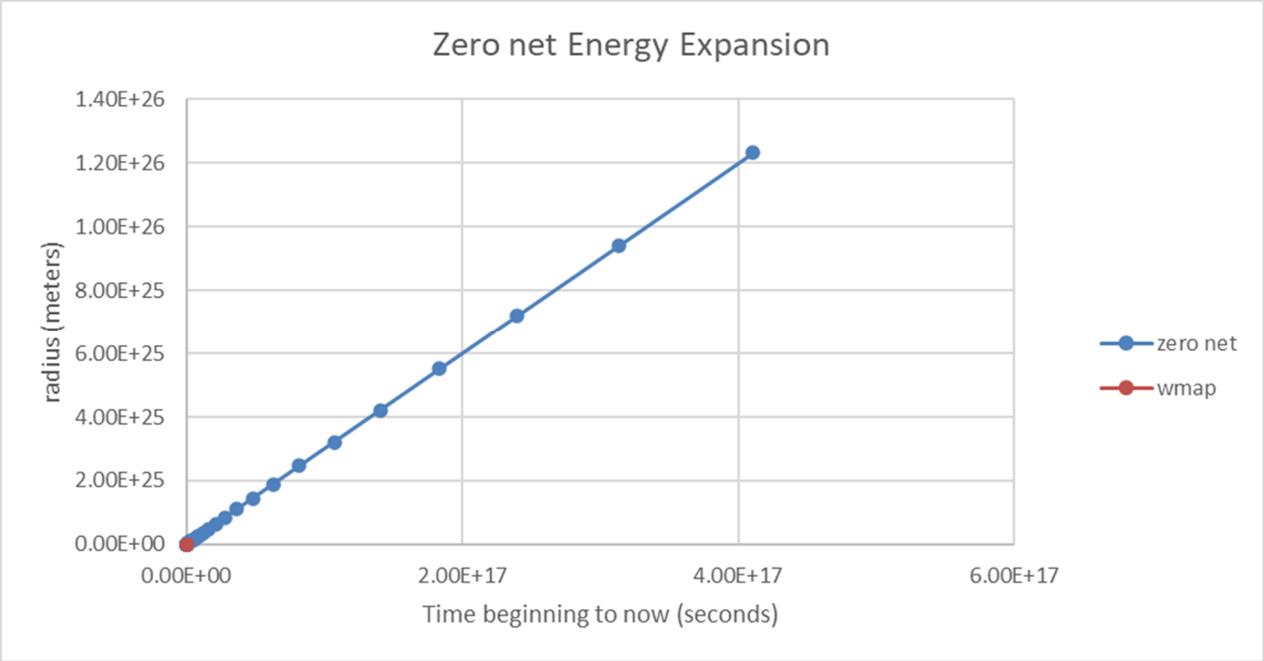
Time and space are defined below with the equation $r = hC/E$ where $E =$ gravitational field = 2.801 MeV (field components from the proton model below = $-0.69 + -0.69 + -0.69 + -0.740 = -2.801$ MeV). This defines time and space.

Identify the radius and time for the gravitational orbit with 2.801 MeV
Fundamental radius = $hC/E = 1.97e-13 / 2.801 = 7.04e-14$ meters
Fundamental time = $7.04e-14 * 2 * \pi / 3e8 = 1.47e-21$ seconds

COSMOLOGY AND TIME.

Overall, the N values of the left-hand side neutron components equal 90. Written as a probability $p = 1/\exp(90)$. The equal but opposite left-hand side components are also $p = 1/\exp(90)$. They occur at the same time, multiplying the probability to $1/\exp(180)$. To re-establish $P=1$ for such an improbable particle, there must be a huge number. Specifically, $P = 1 =$ probability of each neutron * number of neutrons = $1/\exp(180) * \exp(180)$. One can consider the universe being constructed of duplicates that make it whole ($P=1$). Duplicated components give it space-wise and time-wise connections inside a $P=1$ system, explaining some of the weirdness of quantum mechanics. The enormous number $\exp(180)$ is a clue to how large-scale space and time are constructed.

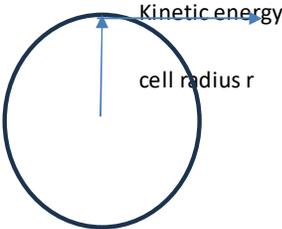
Figure 3 above is duplicated $\exp(180)$ times. Nature places $\exp(180)$ protons and their probability density determined cell radius $r = 7.04e-14$ meters in a large sphere, R. In three dimensions, there are $\exp(60)$ cells along each of three dimensions (X, Y and Z). Fundamental time is the time around the circumference of each cell at velocity C. Each small sphere is expanding outward. The universe of cells expands as each cell expands with $R = \exp(60) * r$. The current expansion rate is the Hubble constant, $1.4e-18$ reciprocal seconds. In the plot below, this is the current radius $R = 1.25e26$ meters radius at time = 13.8 billion years. This creates the straight-line expansion model below. Outward velocity for the straight-line cosmology is lightspeed, C (it also lightspeed around the circumference since time and distance are a fixed ratio). Appendix 4 describes why it can also be labelled zero net energy expansion,



In the beginning neutrons are duplicated $\exp(180)$ times. Neutrons decay to protons, electrons, and anti-electron neutrinos. There is one proton on the surface of each cell described above. The straight-line model is radius and time for cells. Both this model and the Lambda CDM model have particles throughout space with properties that exist below C.

PROTONS IN SPACE TIME.

Each proton has only 10.15 MeV of kinetic energy (according to the proton model) that produces proton velocity 4.38×10^7 meters/sec.



Kinetic Energy MeV		10.151
Gamma (g)=$939.56/(939.56+ke)$		0.9893
Velocity Ratio $v/C=(1-g^2)^{0.5}$		0.1459
Velocity =$v \cdot C$ (meters/sec)		4.375×10^7

This is below C. Placing protons on the cells represents a shift into time. Each cell is a junction between light speed probability waves and energy-based protons. The proton is clearly not moving around the circle as quickly as light. This is not a conceptual problem [17]. Proton kinetic energy is associated with temperature and pressure. Expansion allows the temperature to decrease which is important for mass accumulation features of the universe (galaxies, etc.)[18].

THE PURPOSE OF PROTON COMPONENTS.

The proton is the basis of our universe. Its components each have a purpose. Information level probabilities compute the density function that the proton mass will be observed within dimensions X,Y and Z. (The quarks in the figure below are shown with their observed mass (Particle Data Group data) after they transition while conserving overall energy). Values of $E=\exp(N)$ add to the exact mass of the proton toward the bottom. The proton mass itself has kinetic energy, and the entire table is 959.86 MeV for both mass plus kinetic energy and fields. These are considered opposite making the model a zero net energy model.

Purpose	Component	dimension	Mass MeV	MeV Kinetic E	MeV Field Energy	
↑	Down Quark	X	4.36		753.29	
	Kinetic E		547.621	202	0.69	
Structure x,y,z	Up Quark	Y	2.49		101.95	
	Kinetic E		95.069	5.07563504	0.69	
↓	Up Quark	Z	2.49		101.95	
	Kinetic E		95.069	5.07563504	0.69	
Create atoms	Strong residual KE		10.151			
	neutrino ke		-0.671			
	Weak Field E	fusion	-20.3025	0.00		
	E/M field		-5.44E-05	0		
↑	Proton M	proton	938.27			
	E/M field		2.72E-05			
	Life processes	electron	orbit protc	0.511		
	↓	Kinetic E		0.111		
		v neutrino		0.671	0.118	
		P match		2.02E-05	-0.740	0.67
	ae neutrino+ematch		0.049			
Large scale space	Expansion KE	cosmology	10.103			
Large scale space	Expansion PE	cosmology	10.151			
	Total M+KE		959.8683	211.529	959.8683	

Figure 5 Purpose of proton model components.

Our information-based mind is perceiving particles with energy. Nature appears complex because these few particles are duplicated an incredible number of times. Nature can also micro-miniaturize, making it difficult to see the parts.

Purpose #1 of the top part of Figure 5 is to position protons in time and space. This was discussed above. It is also the source of gravity [Appendix 6].

Purpose #2 of the proton model is to create atoms.

The purpose of the weak field energy (-20.3 MeV) is to allow protons and electrons to fuse, creating atoms with sophisticated electronic orbits. Part of the 10.15 MeV energy inside the proton is released as fusion energy.

Purpose #3 of Figure 5 is to support life processes and brain networks.

The electron and the electromagnetic field are in the middle of the diagram. This part of the proton is responsible for life processes at the level of plant and animal cells and neurons. But we must understand that we use information level probabilities to perceive nature and extract information. The key is probability from the proton model and the concept of pairs of probabilities.

Purpose #4 of Figure 5 is to provide properties like temperature. Expansion cooling promotes structure formation.

The bottom part of Figure 5 is the kinetic energy and potential energy that the proton itself possesses. Each proton is duplicated a huge number of times and possesses energy that expands the universe and creates planets, stars, and galaxies.

The following processes occur sequentially [18].

1. In the beginning neutrons were duplicated $\exp(180)$ times.
2. As expansion occurs gravitational kinetic energy is converted to potential energy.
3. Particles fall into each other's gravitational field and create galaxies and stars.
4. As stars form, protons fall into each other's strong residual fields and release energy. Atoms with complicated electronic structures form and a supernova eventually scatter carbon, silicon, nitrogen, oxygen, etc. that form planets.
5. Chemistry becomes complex and stable carbon atoms lead to life supporting amino acids.

Based on the top part of the proton model, distance is three dimensional and time repeats in increments of $1.47e-21$ sec. Relativity is an energy effect (a time ratio) related to the bottom of the proton model that shows that the proton originally moves with velocity $4.375e7$ meters/sec.

HOW NATURE COMPUTES.

The discussion above entitled "Lessons from the proton model" indicate how nature computes. The information level consists of probabilities waves, but energy level molecules provide structure that positions them in layers similar to the proton model. Probabilities, probability pairs and meanings are produced down through the layers.

Energy	P=2.02e-5/E	Energy	P=2.02e-5/E
5.076	3.99E-06	0.687	2.95E-05
101.947	1.99E-07	753.291	2.69E-08
5.076	3.99E-06	0.687	2.95E-05
13.797	1.47E-06	101.947	1.99E-07
5.076	3.99E-06	0.687	2.95E-05
13.797	1.47E-06	101.947	1.99E-07
X		1	$1=(3.9e-6*1.98e-7)/(2.95e-5*2.69e-8)$
Y		1	etc.
Z		1	etc.
		1	Composite probability
0.511		2.72E-05	electron connector

Energy	P=2.02e-5/E	Energy	P=2.02e-5/E
5.076	3.99E-06	0.687	2.95E-05
101.947	1.99E-07	753.291	2.69E-08
5.076	3.99E-06	0.687	2.95E-05
13.797	1.47E-06	101.947	1.99E-07
5.076	3.99E-06	0.687	2.95E-05
13.797	1.47E-06	101.947	1.99E-07
X		1	$1=(3.9e-6*1.98e-7)/(2.95e-5*2.69e-8)$
Y		1	etc.
Z		1	etc.
		1	Composite probability
0.511		2.72E-05	electron connector

The probability level table for an H2 molecule is shown above connected by electromagnetic bond fields. One of the lessons of the model was that $P=2.02e-5/E$. Each proton component energy holds (is associated with) the probability wave P. When probabilities from both sides of the model are divided they form probability pairs and assigned meanings. The proton probability density is centered at $r=hC/E$ ($=1.973e-13/20.3=9.74-15$ meters. The electromagnetic field connection is about $7.5e-9$ meters.

Other atoms than H can be linked into molecules, but they have a different amount of internal kinetic energy (lost to fusion). The probabilities will be unique down through the calculation and will not be probability =1. Molecules have many ways of being different that make the stack probabilities unique and useful. The layers of the molecule are a language consisting of meanings from unique probabilities pairs.

DNA COMPUTATION.

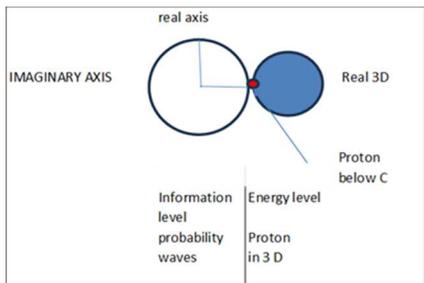
mass	S field			
ke	G field		DNA	
15.43194562	17.43194562			
12.43194562	10.43194562		A	T
13.43194562	15.43194562			
12.43194562	10.43194562			
13.43194562	15.43194562		G	C
12.43194562	10.43194562			
-10.33333333	-10.33333333			
10.40832627	10.40832627		A	G
0	10.33333333			
10.33333333	0			
90	90			

The DNA base pairs can be considered layers held in place by their sugar backbones. But the base pairs themselves are molecules made of atoms (protons and neutrons) connected by electrons. Based on how the proton computes, we can expect that the protons down through the

long DNA are dividing pairs with meanings that store information. See title entitled “How Clusters...” in Appendix 3 for evidence. Specific molecules along the chain consists of probability pairs given the names A,T,G and C. The names combine with other names to form a language; the DNA code. The fact that we find traits along chains is evidence of probability pairs that mean different things about the organism that develops. The DNA molecule contains the information for the entire body of an organism.

Some would agree that DNA results in the body of a human, but what about thought? Above, I placed our viewing point at the interface of energy and information in the proton. It is possible that the organism is using DNA in brain cells to provide a structure for probability wave multiplication and division. There is supporting evidence. Many animals have muscle control at birth. Muscle control is evidence of a brain that has some pre-programming. This could be stored in its DNA and expressed as the brain develops.

The cerebral cortex consists of layers of neurons. The conventional explanation for memory is multiple axion connections but there is not enough memory and axions are too slow. Consider the possibility that brain DNA molecules store or have access to information that computes new probabilities at lightspeed as time passes. Like artificial intelligence (AI), it could compare input with data trained the AI layers. Meaning is assigned to the probabilities. This would make DNA the center of brain function. Its layers (base pairs) down along the sugar backbones compute probability pairs. Cell networks containing DNA help explain our complex brain. Its database may be along the DNA chain, but it could also be stored probabilities associated with proton. The information level is in a different dimension. This was diagrammed above:



There may be no limit to the number of probability waves in the circle on the left.

Evolution.

Evolution begins when information level and the energy level (protons/neutrons/electrons) become functioning probability layers similar to layers in the proton model. The criterium for new information acceptance is that it contributes to the next generation. The new information can be molecules, one cell, systems of cells or specialized cells that sense information. Each of our molecular protons has electromagnetic connections to many neighbors. These form functional layers in single cell animals (lipids, etc.). The cells evolve as DNA reproduces the organism. They cooperate and form layers that eventually become a brain containing DNA. Evolution of the brain is a bootstrap problem because it had to evolve. A pre-existing ‘live’ information level helps us understand. A long period of single cellular organisms eventually evolved into multi-cellular organisms. Layers of cells were used to improve cellular processes. Based on the AI analogy, we would view the information level as layers of probabilities that compute an output.

This makes it easier to understand how biology becomes functional at several levels. The functioning information/body layers become complex if they develop survival strategies in a challenging environment. The information level is a precursor of the brain, and this allows us to evolve and think. We have no choice; we see things (protons around us) in three dimensions. Observations are computed results at the information level of nature. Most results are about re-arrangements of protons, electrons, and neutrons. Observation of nature's particles in X,Y and Z is probability density (Copenhagen interpretation of quantum mechanics). Our information layer is computing probabilities that mean reality to us. But the data the senses gather are about protons outside of us. Together they represent reality.

John Wheeler's "It from Bit" concept is useful. It also points toward an information-based universe that some are calling "fake." The use of this word is misleading. Our mind participates in the information level, but we have energy level bodies and there are real protons around us. This view of nature is also different than the multi-verse concept. Reality is updated perception of the current universe.

VISION

Our reality is associated with probabilities about protons around us gathered by our senses [23]. There are many important bonds in perception, memory, and molecules. The proton model tells us that the electromagnetic field originates as a separation. These separations play a key role for our visual system and the brain.

E/M field		-2.72E-05
Proton M		938.27201
E/M field		2.72E-05
electron		0.511

Electromagnetic energy separations.

The energy values in the proton model above the line labelled proton mass must add to 938.27201 MeV (abbreviated table above). The calculated mass matches data to within 2e-8 MeV and the proton mass match requires taking 27.2e-6 MeV out of the proton mass and giving it to the electron; the electromagnetic field energy separation.

When the electron falls into the proton's field energy, it gains kinetic energy and loses potential energy. The kinetic energy gained is $27.2e-6/2=13.6e-6$ MeV balanced by potential energy. Subsequently, the electron can fall further described by electron orbitals.

N	Binding Ener	Quantum no	Quantum no	Delta Energy	Width	WL Color	D meters
		2	3		nm	nm	D=1e-9/(1/(WL-Width)-1/WL)
0.296	1.36E-05	3.40E-06	1.51E-06	1.89E-06	61.24	656.05	6.37E-06

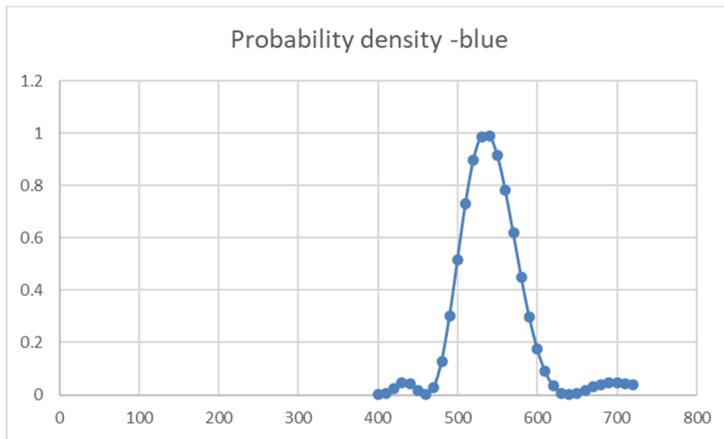
Electron quantum shifts.

Recalling that the quantum number for the orbit reduces the kinetic energy in the orbit by $1.36e-5/Q^2$, where Q can be quantum numbers 2 or 3 [Wiki]. The difference between the two reduced kinetic energy values above $(3.4e-6 - 1.51e-6) = 1.89e-6$ MeV. It will be shown that an important wavelength (656 nanometers) is further changed by probability ($p*656$), lowering the energy and

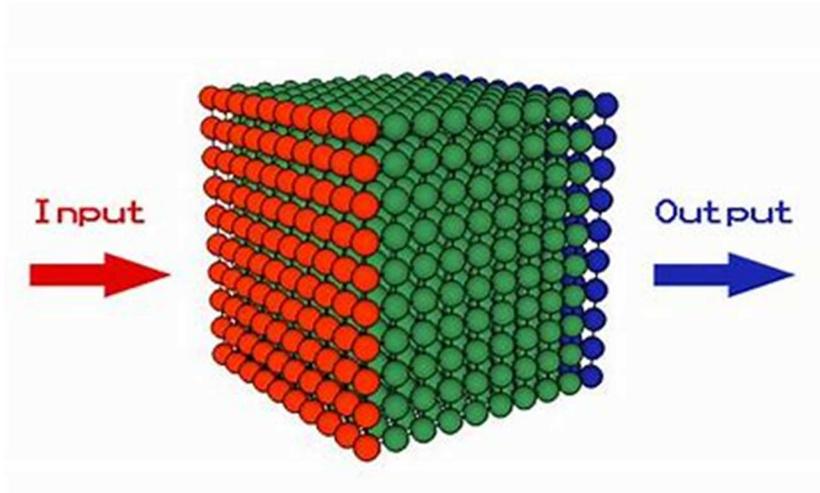
increasing the wavelength. For our visual system, the probabilities are 0.906^n , where $0.0986 = 1/\exp(0.0986)$ and n increases from 0 through 1, 2 and 3 are special for life. The value $N=0.0986$ comes from the proton model.

0.0986	$N=m*0.0986$	multiplier m	multiplier m'	$2.02e-5*\exp(N)$	$2.02e-5*\exp(N)$	dKE (MeV)	Peak WL (millimicrons)	
	0.295836866	4	3	3.00E-05	2.72E-05	2.82E-06	439.52	scotopic
5.110E-01	1.51E-05	3	2	2.72E-05	2.47E-05	2.56E-06	485.07	green
→ 2.466E-05	2.025E-05	2	1	2.47E-05	2.23E-05	2.32E-06	535.34	blue
10.14	10.33	1	0	2.23E-05	2.02E-05	2.10E-06	590.82	red
0.197	0.00E+00			2.02E-05	1.83E-05	1.901E-06	652.05	

Probability density for the color blue.



The neural node interactions are electro-chemical. The input from the eyes and other parts of our brain are combined and our brain processes the data with equations attributed to Feynman. These are quantum calculations involving probabilities. Perception of light is a probability density computation. Your eye spreads the input into a 3 D matrix [21]. AI like computations match sensory input with probability waves circulating in the information level of your DNA protons. Matches between new input and trained layers are pairs that become a matrix of meanings. The cortex creates the internal probability matrix diagrammed below. Each point is a probability function. There are many layers. Some layers represent the colors coming from the image. Other layers represent the 3 dimensions the light is coming from. Still other layers contain previous meanings of the image. Think about this as a computation down through a DNA stack of base pair molecules and their atoms. We experience nature in the same way that a stack of probabilities represents the proton in space and time.

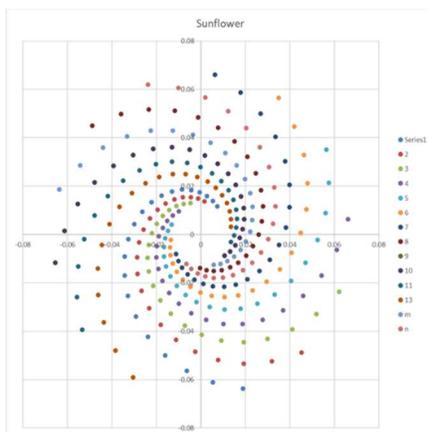


Information layer probability waves are updated as more experience is gained. This increases the complexity and accuracy of future matches. The AI jargon for trained layers is “probability surfaces.” Recall the straight-line model where everything was expanding at C. Proton model N values were positioned at each cell in the straight-line expansion model. Our evolution has repositioned them into layers in our brain, where the layers can compute. Cells in our brain contain DNA. Its regular, layer like structure appears to be an ideal location for probability language and thought. We compute our reality by matching new information (top part of the pair) with layers of probability waves (bottom part of the pair). Memory and thought appears to be access to an entire database (similar to random access memory in a computer) of previously learned meanings. Matching or remembered probabilities pairs (numbers) with assigned meaning are the basis of thought.

It is an amazing fact that each DNA molecule has access to enough information to create an entire organism including its brain wiring. DNA is in every cell, and this multiplies its power.

SUNFLOWERS.

The question arises, who designed the sunflower?



Like all plants and animals, they evolved to be shapes that survived. All nature has to do is use DNA to reproduce organisms. Appendix 3 describes how directions to various parts of a body and bi-lateral symmetry might be specified. Re-creating a body or flower requires not just direction but the size of features. Growth over time requires information about developmental history. How did the parent organism record its information for future generations?

IMAGES

Flowers and babies develop before our eyes. When a flatworm is cut in half, it generates two flatworms. Where is the frog image stored [11] when nature decides that a tadpole must now form a frog? Nature's process is almost perfect and we say, "well it's their DNA." But exactly how does DNA perform this incredible task? Images associated with plants and animals are a mysterious aspect of nature.

As new moments in time are experienced, previous information can always be integrated into the present. Memory is an updated database. This could explain how growth occurs. Each new cell must place the next cell in the right X,Y and Z position. Information from parent sunflowers is stored in a huge DNA database. A new cell "remembers" the correct position for the next cell and places it there. This is like a huge Lego set that contains $1e15$ pieces (cells) with $1e15$ simultaneous construction sites. It depends on very accurate placement and timed instructions for each cell. The sequence of placing cells repeats and the offspring's cells reproduce the sunflower. The sunflower's complex image retains its basic shape as it grows but there are new features that indicate the continual need for new information. Appendix 3 presents a review of the Standard Model. Among other things, it provides useful properties like those listed below that could become part of the DNA database. Known particles control changes in the protons and create useful construction tools.

PROPERTIES

X, Y, Z

REVERSE X,Y,Z

PLANES XY, YZ AND XZ

AROUND CIRCLE LEFT AND RIGHT ---TIME

HANDEDNESS (PARITY)

CHARGE UP or DOWN

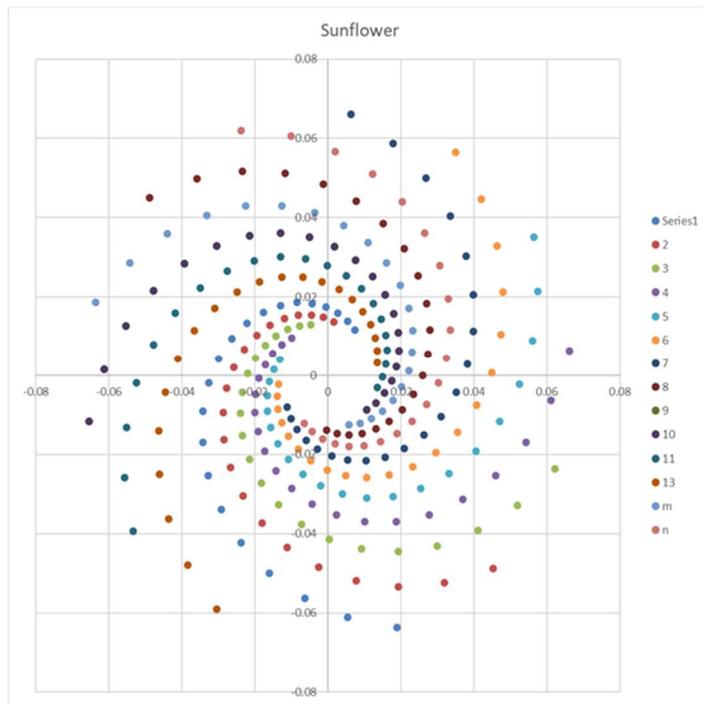
SPIN

Placing particles in specific X, Y and Z locations is one of the things that nature does best. Quantum mechanics calculates probability densities that place a particle along a dimension. The top part of the proton model describes X,Y and Z and the mid part of the proton model provides the electromagnetics required. As the cell divides, it is known that electromagnetic polarity divides the cell into the correct position.

Others believe that there is an information level below DNA. According to Michael Levin, there is a bio-electric network that accompanies cell development [16]. He and his colleague's work indicate that cells in the body signal one another like the brain's neural network. They observed [23] what they call an electric frog face re-arranging a tadpole. Voltage sensitive dyes were used to observe bio-electric patterns controlling eye and mouth positions. The organism was using one

body image and switched to another. Was the image information from the probability wave storage/retrieval system? The bio-electric pattern suggests that image recall requires a physical voltage to facilitate the process. The images unfold (like many still images create animation). Successful bodies of plants and animals evolve and end up with specific cells in specific locations.

Each new cell position triggers the DNA to produce the right cell structure and reproduction of the organism is a reenactment of previous generations.



“Search like” access

Geneticists now believe that DNA is a flexible “tool kit” that contains genes useful for building robust systems simultaneously throughout the body. Cells have an energy source, fluids full of amino acid building blocks and cell walls. Proteins perform a variety of functions in the organism and fold in a very sophisticated way. There are amazing “jumping genes” and molecular motors. Nature becomes much easier to understand with the proposal that image, thought, and memory operations are carried out in DNA molecules that store and have access to information level probability wave data bases. Our brain uses “search like” (software) control [11]. Thoughts control a goal directed search through my information level for probabilities that match and can compute previous images or meanings. These memories do not seem as real as new observations. This may occur throughout our biology. We are not even aware of cellular processes. If the organism survives the challenges, it gets the opportunity to pass DNA to the next generation, and life goes on.

SUMMARY.

Based on the proposals in this work, nature is a combination of two levels. 1) an information level is associated with 2) energy level protons. The information level is lower than Leucippus and Democritus concept’s that originated atomistic theory. It is also a level lower than the

Standard Model. Our mind [3][4][5][8][24][26][27] uses information level probability waves to create, remember and think. Memory is access to a data base of updated probability waves. We compute reality but protons around us provide sensory data. Mind apparently created energy from zero and our energy based bodies are challenged to evolve and increase information but what happens next? Nobody knows. We can hope that we can participate in a new reality of ongoing creation.

APPENDIX 1 PROTON-SPACE MODEL

ENERGY DATA CORRELATION WITH INFORMATION.

The author discovered an information pattern in the data below that allows the mass of the neutron, proton, electron, and other fundamental particles to be calculated. It led the author to assign information values called N for mass and energy components in a math model of the neutron. Sources of the data are listed.

		Particle Data	Energy Es	N details
Identifier		Group energy	Es=e0*exp(N)	
v means neutrino	N=ln(E/e0)	E (MeV)	(MeV)	e0=2.025e-5 MeV
taon v		<15.5		
electron v		2.20E-06	0.048	
N component	0.0986			ln(3)-1
N component	0.16667			.5/3
muon v		< 0.17	0.0695	
E/M Field E	0.296	2.720E-05	2.72E-05	3*.0986=.296
ELECTRON	10.136	0.51099891	0.511	10.136=10.432-3*.0986
N component for qua	10.333		0.6224	10+1/3
N component for W	10.408		0.671	90-remainder
Grav field compc	10.432		0.687	10.432=10+1/3+.0986
Grav field compc	10.507		0.740	10.408+.0986
Energy difference Neutron-Pro		1.293		0.622+0.671=1.293
Graviton	10.432 & 10.507	6.00E-26	2.801	3*0.687+.74
Up quark Mass	13.432	2.16	2.490	4*0.622 MeV
Kinetic Energy f	12.432		5.076	10.432+2
Down quark Mas	13.432	4.67	4.357	7*0.622 MeV
Down quark KE	15.432	93	92.507	101.947-9.44 (quarks)
Down Strong Fie	15.432		101.947	
Charmed Quark	17.432	1275	1273.37	15.432+2
Strange Strong f	17.432		753.291	
Bottom Quark M	19.432	4175	4175.27	17.432+2
Top Quark Mass	21.432	17276	17261.00	19.432+2
W+,w- Boson	22.106	80445	80668.71	22.5-4*.0986
Z Boson	22.234	91188	91757.6	22.5-.0985-.167
HIGGS Boson	22.530	125300	123340.7	22.5+2*.0986-.167

Figure 6 Particle data comparisons with model N values.

The values of N (column 2) form an easy to identify series. Column 3 is data from accepted sources and column 4 uses the relationship $E=2.02e-5*\exp(N)$ to correlate N with the data. It supports an exponential relationship between particle or boson energy E (MeV) and $N=\ln(E/e_0)$ where e_0 is $2.025e-5$ (MeV). The value e_0 is derived from the mass of the electron, 0.511 MeV ($e_0=0.511/\exp(10.1362)=2.02e-5$ MeV). The electron is $N=10.413-0.296=10.1362$ (refer to data above). Many N values contain the fractional value $xx.431=1/3+0.0986$. The value $0.0986 = \ln(3/e)$, where e is the natural number 2.718 . The symbol $\exp(\text{power})$ is the natural number $e^{(\text{power})}$ not to be confused with e_0 , a pre-exponential.

BASIS OF THE MODEL.

A unifying theory requires a sound fundamental concept that should represent everything [5]. Probabilities will be involved and are not difficult to understand. For anything to have meaning it must be compared to something of the same type. For example, a word in a language means something because it names something within a language you understand. Probabilities written

in numbers mean one outcome compared to all number possibilities. Shannon's definition of information is information = negative natural logarithm P, which means that if P= 1, information= 0. Information is related to probability; the lower the probability (P) the higher the information content [2].

Energy E and time t enter nature through the exponent, $i \cdot 1$ where $1 = Et/H$. Energy is E, time is t and H is Planck's constant.

Quantum mechanical equations use complex conjugates or wave functions. The result of the multiplication Probability =1 is also referred to as "collapse of the wave function" [Topic 12.1 Argand diagram].

$P=1$ can also be written $P = p \cdot p \cdot p \cdot p = 1$. Important information is in the sub-components of each $p=1 = a \cdot b / (c \cdot d)$. These values are discovered in the original data above and are used to construct a model of the neutron and proton. Probability =1 is considered to be an initial condition from which mass (plus kinetic energy) and equal and opposite field energy were separated. Creation from net zero energy means that parts come into existence simultaneously and one doesn't have to ask; "where does energy come from?" The model describes a neutron that was duplicated a huge number of times and decays to the proton, electron, and anti-electron neutrino. Schrodinger $P=1$ components unify nature.

Energy= 0 constraint

The energy components of the neutron (model) contain net zero energy. The neutron decays to a proton, electron, and anti-electron neutrino also with net zero energy. Mass plus kinetic energy is positive, and field energy is equal and opposite.

Probability=1 constraint

Evaluating energy requires consideration of overall probability, not just the probability of particles. The initial probability of the universe is 1, meaning it does indeed exist. Initially there was the potential for many neutrons, each with mass, etc., that would make up the universe. Specifically:

$P = 1 = \text{probability of each neutron} \cdot \text{number of neutrons} = 1/\exp(N) \cdot \exp(N)$.

Neutron and proton energy components

Development of the model is based on the Schrodinger term $Et/H=1$. The math below is like Dirac's analysis. It allows the energy terms and time terms to be separated.

Constrain Energy to zero

$1 = \exp(itE/H) \cdot \exp(-itE/H)$

take the natural log and divide both sides by i

$0 = itE/H - itE/H$

$0 = t/H \cdot E - t/H \cdot E$

take the square root. Since $Et/H=1$, $E=1/(t/H)$

$0 = (E-E) \cdot (t/H - t/H)$

$0 = E1 - E1$

Example:

$a=1/b \quad a=.5 \quad b=2$

$ab-ba \quad 0$

$(a-a) \cdot (b-b) = 0 \quad (0.5-0.5) \cdot (2-2) = 0$

Using the square root procedure above with each $t/H=1/E$, we only need the energy terms that are equal and opposite. (The square root also has a $(t/H-t/H)=0$ solution that contains inverted terms, but the solution is redundant).

Definitions:

$p=e_0/E=1/\exp(N)$ and $p=1/\exp(N)$. Combining these definitions yields $E=e_0*\exp(N)$. The value of N is discovered in the original energy data. The pre-exponential constant e_0 is evaluated by knowing the electron is $N=10.413-.296=10.1362$. $e_0=0.511/\exp(10.136)=2.02e-5$ MeV.

Mass plus kinetic energy will be defined as positive separated from equal and opposite negative field energy.

$P=p*p*p*p$ represents an information pattern we recognize as neutron energy components. Each component has a specific probability that is related to its energy, E .

Quarks

The Schrodinger unitary evolution equation with four parts, probability 1 and energy 0 will be shown below to represent one of the quarks with kinetic energy attracted to two fields.

The four N values discussed above, and their associated energy is called a quad. There are three quads like this in the model below that represent the three quarks in a neutron. The correlated E values $E=e_0*\exp(N)$ are in a box to the right of each N value. The key to distinguishing mass from kinetic energy and two fields is shown below. The positions are not interchangeable.

mass	E1		field1	E3
kinetic energy	E2		field2	E4
mass=E1			field1	E3
Kinetic energy =E2+(E3+E4-E1-E2)			field2	E4

Position code from mass, kinetic energy, and fields.

		mev			mev		
		$E=e_0*\exp(N)$			$E=e_0*\exp(N)$		
N1	13.43	13.8	E1 mass N3	15.43	101.95	E3 field	
N2	12.43	5.1	E2 ke N4	10.43	0.69	E4 field	

$E1=2.02e-5*\exp(13.43)=13.79$ MeV, $E2=2.02e-5*\exp(12.43)=5.08$ MeV, $E3=2.02e-5*\exp(15.43)=101.95$ MeV, $E4=2.02e-5*\exp(10.43)=0.69$ MeV.

The N values for the quark strong field is $N=2$ higher than quark mass N (for each of 3 quarks).

Energy zero construct					
	$E3+E4-E1-E2$				
E1 mass	ke	E2 ke	E3 field1	E4 field2	Esum
mev	mev	mev	mev	mev	
13.80	83.76	5.08	-101.95	-0.69	0.00

E1 is the only mass term, E3 and E4 are field energy, and the remainder is kinetic energy.
 Overall, above: $E1+(E3+E4-E1-E2)+E2-E3-E4 = 0 = (E1-E1)+(E2-E2)+(E3-E3)+(E4-E4)$.

Probability=1 construct

$$1=(1/\exp(13.43))*1/\exp(12.43)/(1/\exp(15.43))*1/\exp(10.43))$$

This is consistent with the Schrodinger equation. The energy (E) values are in the exponents $\exp(Et/H)$. At the collapse point, probability 1, mass E1 (a quark) with kinetic energy $(E3+E4-E1-E2+E2)$ is orbiting field energy E3. It is also attracted to field energy E4. Field energy E4 is a component of gravitational field energy. The energy $E2+E2= 10.15$ MeV is fundamental to atomic fusion and expansion of the universe.

The proton model is the source of information for cosmology and unification . It is the basis of the expansion table above and shows the origin of kinetic energy for expansion 10.15 MeV. Every component of the proton has an information value associated with it. In the table below, the information value is placed next to an energy value. The relationship is $E=e^0*\exp(N)$. N is information.

The model below describes a neutron that was duplicated a vast number of times and decays to the proton, electron, and anti-electron neutrino. It starts with N for the Higgs, Z and W bosons on the left-hand side which, according to the Standard Model, are the source of field energy on the right-hand side.

				21.432		Top							
Higgs				19.432		Bottom							
Higgs				17.432		Charm							
Z=22.235		Z components		Neutron		Neutron		Proton					
Split 90/4	W=22.106	W componer.	Action of W-	N values for mass	E=e ⁰ *exp(N)	N values for fields	E=e ⁰ *exp(N)	N values for mass	E=e ⁰ *exp(N)	N values for fields	E=e ⁰ *exp(N)		
22.500	22.530			12.432	5.076	10.432	0.687	12.432	5.076	10.432	0.687		
	-0.1972		0.197	15.432	101.947	17.432	753.291	15.432	101.947	17.432	753.291		
	0.167		5.167	down -.33				down -.33					
22.500	22.530			12.432	5.076	10.432	0.687	12.432	5.076	10.432	0.687		
	-0.1972		0.197	13.432	13.797	15.432	101.947	13.432	13.797	15.432	101.947		
	0.167		3.167	up -.33 plus 1 op				up -.33 plus 1					
22.500	22.235	-10.4316		12.432	5.076	10.432	0.687	12.432	5.076	10.432	0.687		
	0.0986	10.507	0.197	13.432	13.797	15.432	101.947	13.432	13.797	15.432	101.947		
	0.167	10.333	3.167	up -.33				up -.33 plus 1					
22.500	22.106	-10.4316		Z components	E=e ⁰ *exp(N)	Z Field	E=e ⁰ *exp(N)	W components	E=e ⁰ *exp(N)	W field	E=e ⁰ *exp(N)		
	0.3944	10.408		-10.432		-10.432		-10.432		-10.333			
		10.432		10.507	0.740	10.507	-0.740	10.408	0.671	10.408	-0.671		
			12.092	10.333	0.622	10.333	-0.622	10.333	0.511	10.333	-0.622		
							0.000	0.296	2.72E-05				
90.000	90.00	22.50		90.000		90.000		90.000		90.000			

The neutron decays to a proton, electron, and anti-electron neutrino. The components above add exactly to the mass of each of these particles below. It is a particle-space model because it includes energy for expansion.

	MeV		MeV		MeV		MeV
	Neutron Mass	Components	Neutron Field	Components	Proton Mass	Components	Proton Fields
	101.947	Mass	753.291	Strong Field E	101.947	Mass	753.291
	13.797	Mass	101.947	Strong Field E	13.797	Mass	101.947
	13.797	Mass	101.947	Strong Field E	13.797	Mass	101.947
	5.076	Ke	2.801	Gravitational Field	5.076	Ke	2.801
	646.955	Difference KE			646.955	Difference KE	
	83.761	Difference KE			83.761	Difference KE	
	83.761	Difference KE			83.761	Difference KE	
	10.151	Fusion KE			10.151	Fusion KE	
	-20.303	Weak Field E			-20.303	Weak Field E	
					-0.622	minus quark mass	
accuracy vs PDG	0.622	adds to quark mass		accuracy vs PDG	-0.048	ae neutrino	
	-7.18546E-09		-0.118	-0.0000096	-5.44E-05	Em Field +2	-0.118
	939.5654133	939.565413 Neutron mass		938.2720814	938.27209		
PDG				PDG	2.72E-05	EMField -1	
					0.511	Electron	
					0.671	.622+.048	
					0.11141	Kinetic E	
	10.15127081	KE Expansion			10.15	KE Expansion	
	10.15127081	PE Expansion			10.151	PE Expansion	
	959.8680		959.8680		959.8679		959.8680

Overall, the N values of the left-hand side neutron components equal 90. Written as a probability $p = 1/\exp(90)$. The equal but opposite left-hand side components are also $p = 1/\exp(90)$. They occur at the same time, multiplying the probability to $1/\exp(180)$. To re-establish $P=1$ for such an improbable particle, there must be a huge number. Specifically, $P = 1 = \text{probability of each neutron} * \text{number of neutrons} = 1/\exp(180) * \exp(180)$. Referring to the concept of wholeness, one can consider the universe being constructed of duplicates. The duplicate proton-space components give it space-wise and time-wise connections inside a $P=1$ system, explaining some of the weirdness of quantum mechanics.

APPENDIX 2 COLOR VISION.

Electron quantum shifts.

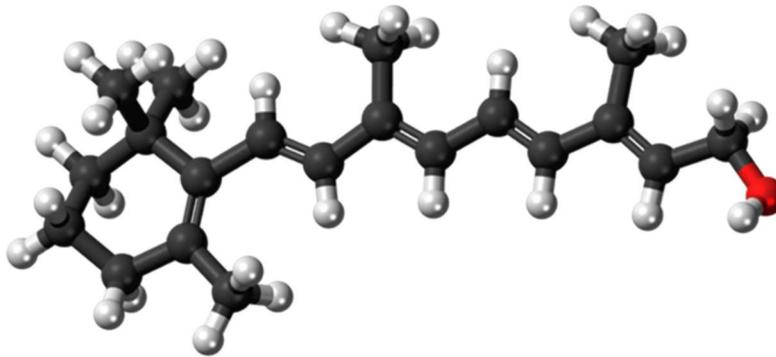
Recalling that the quantum number for the orbit reduces the kinetic energy in the orbit by $1.36e-5/Q^2$, where Q can be quantum numbers 2 or 3 [Wiki]. The difference between the two reduced kinetic energy values above $(3.4e-6 - 1.51e-6) = 1.89e-6$ MeV. It will be shown that an important wavelength (656 nanometers) is further changed by probability ($p * 656$), lowering the energy and increasing the wavelength. For our visual system, the probabilities are 0.906^n , where $0.0986 = 1/\exp(0.0986)$ and n increases from 0 through 1, 2 and 3 are special for life. Matches between stored and incoming wavelengths “fire” a Feynman probability we perceive as color vision. The body uses the same process to store and evolve through genetic information leading to body iterations. Neural networks in the brain stored wavelengths and external inputs that we perceive as thought. The information is stored as probabilities. It includes the body/perception/thought system in space and time. But sometimes something like a computer program is running. Are we part of a system?

But there is an important difference in this energy change. The value $dKE = 1.89e-6$ MeV is an electromagnetic wave. The bonds between protons (inside atoms) and electrons lose energy by

emitting electromagnetic energy. The wavelength associated with this energy is 656 nanometers. It is evident that further changes in this wavelength associated with stored probabilities (for color green $p=0.906$ and $0.906 \cdot 656=594$ nm) lead to color vision. The block below (yellow is the information core) shows the differential change in the bond energy as potential energy. The emitted light is shown outside the proton—electron as differential kinetic energy (dKE or light).

MOLECULES THAT ARE SENSORY COMPONENTS

Each proton in the atoms attracts an electron and creates orbitals. This in turn creates a valence and rules for how atoms interact. This creates molecules. Evolution has developed eyes many times based on a series of stored wavelengths that respond to light absorption described by the Feynman equation [2]. Retinol and Rhodopsin molecules in the retina are part of a visual cycle. These molecules are suited for electron-based sensors because they contain conjugated bonds with progressively lower energy levels (progressively increased wavelengths along the molecule are stored information). Retinol has the following structure (downloaded from Wiki). The conjugated bonds along the chain are $C=C-C$.



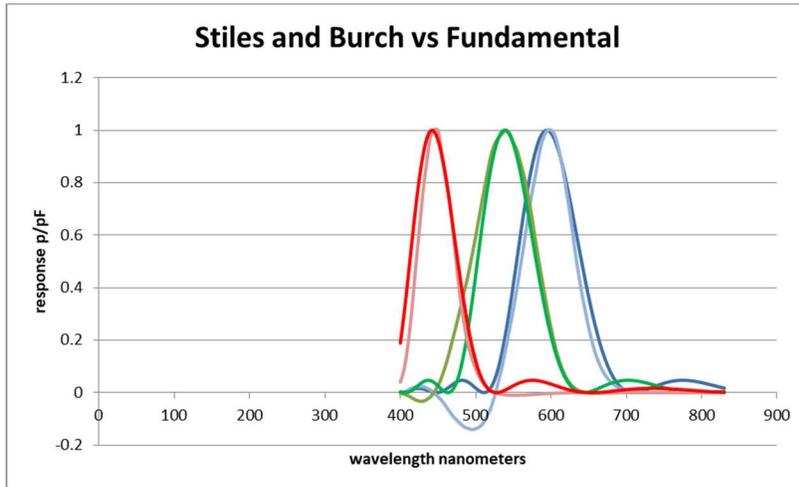
Rhodopsin molecule.

This supports the concept that bonds in some molecules facilitate perception based on the Feynman based absorption equation. Energy level signals from the molecule are sent to the brain where neuron networks create color vision. Probabilities are associated with the atomic level (the proton model), but molecules can store probability ($p \cdot 656$ nm) modified wavelengths associated with perception.

$Pf/PF = \sin(2DM)^2 / (DM)^2$								
				D	M			
n	$P=0.906^n$	Width	WL Color	D (meters)	\downarrow	\downarrow	$M=1e9 \cdot (1/wl-1/WLC)$ (1/meters)	
0	1.00	61.23	655.93	6.37E-06	1.00E+00	-2.16E+03	655	scotopic input (low light)
1	0.91	55.48	594.34	5.77E-06	1.00E+00	-9.67E+02	594	green input
2	0.82	50.27	538.54	5.23E-06	1.00E+00	-1.85E+03	538	blue input
3	0.74	45.55	487.97	4.739E-06	1.00E+00	-4.08E+03	487	red input
				Sum (Pf/PF)/	1.00E+00			White Light at peaks

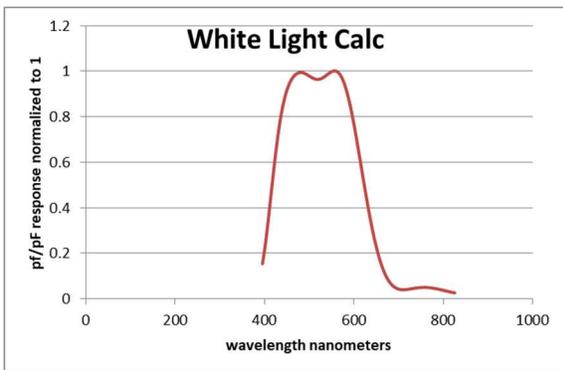
Color wavelength series.

Data for the following diagram was downloaded from the Color Vision Research Laboratory at the University of California [1]. It is the Stiles and Burch, red and blue, 10-degree target color matching functions used to characterize cone spectral sensitivity. The peak responses and off-peak responses are shown below. The above table mathematically simulates color vision with our computer, but our eyes do it with physics. Signals from the rhodopsin molecule are sent to the brain where a network uses the Feynman equation to interpret them.



Comparison of color response with data.

Probabilities neatly represent white light when three colors are added and normalized to unity. The fourth color is scotopic (black and white vision). This value is shown in the calculation table as Sum=peak/4.



White light simulation.

DETAILS OF THE ABOVE CURVES

The column labelled WL Color in the table below is the wavelength associated with delta energy $1.86e-6$ MeV for the quantum shift (656 nanometers= $0.00124/\text{Energy}$). A series of peak wavelengths related to color vision is produced by multiplying 656 nanometers by 0.906^{exponent} , where the exponent= 0, 1, 2 or 3). This probability= $1/\exp(N)= 1/\exp(0.0986)=$

0.906. The value $N=0.0986=\ln(3/e)$ is information. This means that nature associates electromagnetic levels with information.

The equation of interest for light absorption is a wave function for a system that has an internal freedom that varies back and forth between two frequency (f) values.

$$\Psi = \mu e_0/h (1 - \exp i (f-F) t/(f-F))$$

The solution to this quantum mechanical equation is found in The Feynman Lectures on Physics, Volume III page 9-13. The basic equation for a probability pf is divided by pF to form a ratio normalized to make the peak response equal to one at the peak frequency, F. This equation will be called the absorption equation.

$$Pf/pF = (\sin((f-F)t/2))^2/((f-F)t/2)^2$$

Where f= frequency and t=time interval.

The absorption equation can also be written in terms of distance ($D=C t$), instead of time. $M= f-F= 1e-9*(1/wl-1/WL)$ where WL is in meters.

$$D = 1e-9/(1/(WLC-Width)-1/WLC)$$

Width of the color peak (WLC) is associated with differential energies.

$$\text{Width} = 0.00124 \text{ MeV-nanometers}/2.02e-5 = 61.23 \text{ nm.}$$

$$M = 1e9*(1/wl-1/WL) \text{ (1/meters)}$$

$$pf/pF = (\text{SIN}(2DM))^2/(DM)^2$$

Each line of the probability series p^{*656} multiplies $D*M$. WL in the figure below is the input wavelength in nanometers. If the input wavelength listed on the right-side matches WL Color, $Pf/PF = \sin(2DM)^2/(DM)^2 = 1$. If it does not match Pf/PF it will be a lower value. The components are added together in a network to produce a result. In figure 29, the meaningful result is perception of white light. If the individual spectrums are incomplete, the result can be all the other hues [58].

The information value N for light is 0.0986. The value 0.0986 from the information pattern for the neutron model gives the value $P=1/\exp(0.0986)=0.906$. The value 0.906^N separates the colors and specifies the peak wavelengths for the underlying quantum 2 to 3 electromagnetic energy transition.

Your mental experience of color vision is proof of a link between the Feynman probability Pf/PF and perception. This is important because it shows that quantum mechanical computations are associated with specific meaningful experiences inside the brain. We found probabilities for the proton-space model, but we did not know that color vision is a similar system, using the same probability code (N) to modify and store wavelength. The value $N= 0.0986$ is a component of the neutron and vision (i.e., they use the same system). Probability $P=0.906=1/\exp(0.0986)$ and 0.906^n are the modifiers. It also uses width 61.2 nm associated with $e_0=2.02e-5$ MeV in the Feynman equation. This is a huge clue regarding nature.

Energy levels of the rhodopsin molecule are transmitted to a neural network in the brain. The network uses the Feynman Pf/PF wave-function collapse to compute matches for the overall Schrodinger P=1 system. The result of the computation is perception we call color vision. Perhaps the rhodopsin molecule's signals were evolutionary, and vision gives the developing organism a competitive advantage. Above we proposed that the proton consists of $p^*p^*p^*p=1$ sub-components. The proton is fundamental to nature but when it and its partner electron are combined into molecules, nature has a new set of sub-components that can store information. David Bohm wrote about systems like this. The ability to use a molecular level information allows what he would call the explicate order to express itself from an implicate order.

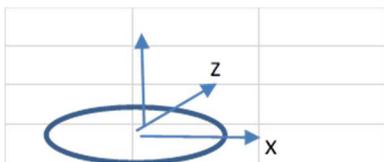
APPENDIX 3 DIMENSIONS AND THE PROTON MODEL

The diagram below is an excerpt from the proton model showing the gravitational components that suggest x, y, and z dimensions.

N values for fields	$E=e0*\exp(N)$	Dimension
10.432	0.687	X
17.432	753.291	
10.432	0.687	Y
15.432	101.947	
10.432	0.687	Z
15.432	101.947	

DIRECTIONS FOR DNA INSTRUCTIONS.

Think about the possibility that fields from the proton components above can represent images with dimensions, directions, and planes.



Reconciliation of Standard Model and neutron/proton model

The neutron/proton models are consistent with the Standard Model of particle physics [10][9]. Among other things, it provides properties like those listed below.

PROPERTIES

X, Y, Z

REVERSE X,Y,Z

PLANES XY, YZ AND XZ

AROUND CIRCLE LEFT AND RIGHT ---TIME

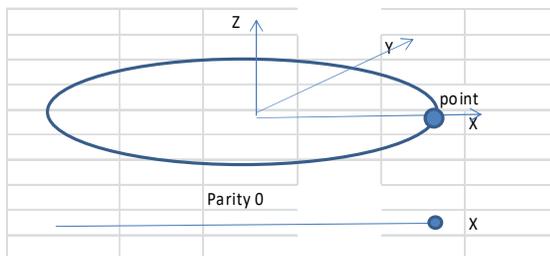
HANDEDNESS (PARITY)

CHARGE UP or DOWN

SPIN

The top three quads in the information pattern are discussed next. Six of the entities in the Standard Model have a quark linked to a single field. Wave pattern circles can represent sequential instructions for particles placed at distances X,Y or Z (the top three quads in the information pattern are dimensions). Other entities have a quark influenced by two fields. With two fields the quark responds in two dimensions, creating planes rather than one dimensional confined axis. In combination with parity and spin, the arrow (charge) could be up or down. The Standard Model entities in Appendix 9 are designated clockwise (R) or counterclockwise (L). Parity is handedness, a combination of the charge's direction and motion in the circle. In the neutron model time is moving around a circle. Its direction can be clockwise or counterclockwise. Physicists use a concept called CPT invariance (Charge, Parity and Time add to a constant). Charge is field energy but as a property it is positive or negative one. Parity is dependent on the perspective of the observer, and the diagram above can be viewed looking down or looking up. This switches L and R like looking in a mirror. Perspective can't change a field, and this means that orientation is itself a property. Our perspective of a circle changes to a line if the diagram is observed from the edge and time direction can't be discerned. The circle represents a sinusoidal field. Particles have spin (convention is half spin) with the value H.

Entities without e or v components and one field define dimensions, X, Y and Z.



The above diagram is from the proton-space model. The values $N=10.431$ are N values for gravitational field energy, 2.801 MeV. There are three values inside the proton that I associate with the 3 dimensions of the universe. After learning that there might be a real time axis and an imaginary time axis the diagram above makes more sense. Each dimension might have an imaginary time axis projecting at ninety degrees. This provides a way of storing three-dimensional information. DNA strings contain information about *what* protein is placed but it can also encode *where* and when to place protein-based cells. The where is a 3-dimensional image.

DNA HOX CLUSTERS.

Hox clusters of genes go back to the beginning of life. They have diverged slightly but code for anatomy. There are four hox clusters of genes that occur in five chromosomes. In simple organisms the Hox genes code for a protein. Amino acids expressed by DNA occur along a line that becomes the body of a fly or vertebra in humans. The concept is called co-linearity and the order of the genes in the Hox cluster is exactly the order of structures in the vertebra of the embryo. Hox clusters contain when, what and where information for the structure of bodies. The human body has features and dimensions that follow an exponential series. There is a gene that determines features branching from the shoulder that all living creatures display (1 bone, 2 bones, many bones, 5 fingers).

Genetics teaches us that each cell contains DNA that supports RNA/protein replication in the well-studied process called mitosis [7]. Specific molecules strip the DNA apart and other molecules reassemble it into a duplicate set. Since the two DNA strands are identical one must be reassembled in reverse. This is done in segments that find their way back to the developing strand in the right order (quite an intellectual feat). Molecular motors have been modeled and presented as videos. They facilitate the cells' internal processes by moving materials. We can speculate that these motors and the microtubules move according to software instructions.

What do ATG&C codes mean? According to literature, codes close to genes are promoters and switches that control gene expression. We learned above that large-scale molecules are like the proton model. Probabilities multiply down through the layers. Development with time moves down the chain of traits and multiplies to find the probability values that represent the next cell in a sophisticated body structure. Why wouldn't biology discover and use the information level computational system associated with energy? It is inside DNA atoms and has access to everything.

APPENDIX 4 BRIEF DESCRIPTION OF STRAIGHT LINE EXPANSION.

The zero net energy expansion model [12][17] is describes below. The viewpoint presented is based on everything on a surface moving outward at light speed. Time is 'the age of the universe' pointing toward the center of a sphere. This places everything on the surface of a square. Einstein held the viewpoint that properties were associated with a fourth dimension. Dealing with the imaginary conjugates in the equation might not be simple in the Figure 3 [text title "Cosmology and quantum mechanics"]. According to Wikipedia, the Wick rotation is required to "change our view from one that involves imaginary time to one that involves absolute time." The rotation is a 90-degree rotation. In the accepted expansion model, everything is on the surface of the hollow sphere, the real time dimension [14].

Unification Table	cell bj162	beginning		Current radius of Universe=1.25e26 meters	
		Mass+Ke	Field Energy	Mass+Ke	Field Energy
exponent (number of time cycles)			60		90.372
Field Energy E (MeV)	$E=2.801/EXP(\text{exponent})$		2.5E-26		1.6E-39
R (meters)	$R=hC/E=1.97e-13/E$		8.04E+12		1.25E+26
Particle Mass (MeV)	$m=1.67e-27 \text{ KG}$	939.57	957.18	939.57	957.18
Mass M (kg)	1.6726E-27				
Kinetic Energy (MeV)	$KE=7.0446e-14*10.123/R$	10.123		6.53E-13	
		0.03	-1.18E-01		-1.18E-01
Potential energy (MeV)		10.15	2.8011	20.3000	2.8011
Sum of above		959.87	959.87	959.87	959.87
Required energy in column (MeV)		959.8680	959.8680	959.8680	959.8680

There are two energy columns for the beginning on the left side of the diagram above. The leftmost column shows mass plus kinetic energy plus potential energy from the proton-space model. It totals 959.87 MeV. The right column for the beginning is for field energy. It also totals 959.87 MeV. Zero net energy is maintained ($0 = 959.87 - 959.87$).

Fundamental time for the straight line model

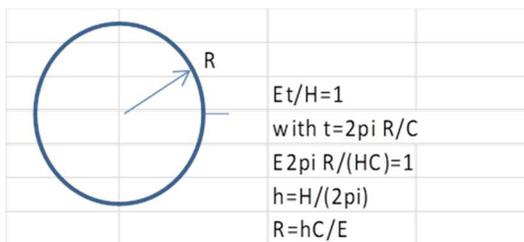
The other basic concept of straight line expansion is that $Et/H=1$ is held constant while time t advances. In physics it is accepted that $E=hv$, where $v=1/t$. The value $Et/H=1$ with $t=2\pi R/C$ leads to $R=HC/(2\pi)/E=hC/E$. R = probabilistic position of a quantum particle.

Time and space are defined below with the equation $R=hC/E$ where E = gravitational field = 2.801 MeV. The value 2.801 MeV is the gravitational field energy from the proton-space model.

H = Planck's constant= $4.14e-21$ MeV-second. $h=H/(2\pi)$ is Planck's reduced constant [Wiki].

M =mass (energy) of the particle. If the particle is moving fast relativistic mass is m/γ .

E =the attractive field energy that causes a particle with kinetic energy to move in a circle.



The gravitational energy field = 2.801 MeV is special because it defines time and space. R = quantum circle radius= $HC/2\pi=1.973e-13/2.8011=7.045e-14$ meters.

Identify the radius and time for the gravitational orbit with 2.801 MeV
Fundamental radius= $hC/E=1.97e-13/2.801=7.04e-14$ meters
Fundamental time= $7.04e-14*2*\pi()/3e8=1.47e-21$ seconds

Time advances in of $1.47e-21$ sec increments for the straight-line expansion model.

Expanding the universe and keeping Et/H=1.

An expansion curve is produced as time moves forward in increments of $1.47e-21$ seconds. The exponent ($\exp(N)$) counts the time cycles. The beginning time is $1.47e-21 * \exp(60) = 1.69e5$ seconds. An expansion curve is a plot of expansion radius vs time. Fundamental time above was around a circle. But an expansion curve is based on time across the radius time is divided by 2π to agree with cosmologies "age of the universe". Time $1.69e5 / 2\pi = 2.68e4$ seconds is the first point on the expansion curve. The value for energy $E = 2.801 / \exp(60)$ in the equation $Et/H = 1$. The first $Et/H = 2.5e-26 * 1.69e5 / 4.14e-21 = 1$ is shown in the beginning field energy column.

An expansion curve for radius is produced as time progresses. The current radius is shown above in the rightmost column.

Unification Table	cell bj162	beginning	beginning	Current radius of Universe = $1.25e26$ meters	
		Mass+Ke	Field Energy	Mass+Ke	Field Energy
exponent (number of time cycles)			60		90.372
Field Energy E (MeV)	$E = 2.801 / \exp(\text{exponent})$		2.5E-26		1.6E-39
R (meters)	$R = hc/E = 1.97e-13/E$		8.04E+12		1.25E+26
Particle Mass (MeV)	$m = 1.67e-27$ KG	939.57	957.18	939.57	957.18
Mass M (kg)	$1.6726E-27$				
Kinetic Energy (MeV)	$KE = 7.0446e-14 * 10.123/R$	10.123		6.53E-13	
		0.03	-1.18E-01		-1.18E-01
Potential energy (MeV)		10.15	2.8011	20.3000	2.8011
Sum of above		959.87	959.87	959.87	959.87
Required energy in column (MeV)		959.8680	959.8680	959.8680	959.8680
time	$2\pi R/C$ (sec)		1.69E+05		2.61E+18
Time across radius = time / (2 pi) seconds			2.68E+04		4.16E+17
E*t (MeV-sec)	Field E*t time		4.14E-21		4.14E-21
E*t/H	E*t/H		1.00E+00		1.00E+00
Universe mass = $1.6747e-27 * \exp(90)$		2.4943E+51		2.4946E+51	
R cell = $8.04e12 / \exp(60)$	6.00E+01	7.0446E-14		1.0921	
$V = (2 * 10.123 / 1.67493E-27 * 1.6022e-13)^{0.5}$		4.401E+07		11.1771	
Expansion distance (meter)			8.04E+12		1.25E+26
Expansion time (sec)			2.68E+04		4.16E+17
Expansion speed (meter/sec)					$(1.25e26 - 8.04e12) / (4.116e17 - 2.68e4) = 2.998e8$
			Large hollow sphere outward velocity		2.998E+08 meter/sec
$G = rv^2/m = 7.0446e-14 * 7.401e7^2 / 1.6749e-27$					2.6251E-18
					$(1.0921 - 7.045e-14) / (4.16e17 - 2.68e4)$
			exp(60) cell outward velocity		$2.625e-18 * \exp(60) = 2.998e8$

APPENDIX 5 CELLULAR COSMOLOGY AND DERIVATION OF EXP(90)

There is a deep gravitation connection between all particles in the universe. A concept called cellular cosmology that breaks one large volume into many small volumes (cells) with a proton in each volume. Gravitation for the cell is defined by the proton-space model. Gravity is different because all particles influence one another (are connected to one another). Compare this to an electron and the electro-magnetic force. This force falls off quickly with distance and does not influence distant electrons like gravity influences distant mass.

The gravitational field energy, 2.801 MeV is the basis for quantum gravity with fundamental radius $7.045e-14$ meters. The gravitational coupling constant $1/\exp(90)$ scales the quantum level

to Newtonian G and weakens the effect of gravity since it is shared between $\exp(90) = 1.49e78$ particles. This causes gravitation to be a long-range force.

Gravity is an inverse squares phenomenon meaning that the force varies with $1/\text{radius}^2$. One proton is receiving a small gravitational flux from all the other protons in nature. The proton model contains constants that define gravity, but there is a correction for the effect all the other protons have one proton. This means the overall flux must be divided by the total number of protons. The proton-space model is based on probabilities that indicate $M_{\text{total}} = \text{proton mass} \cdot \exp(180)$. Flux for one proton = $\text{total flux} / \exp(180)$. Since flux is r^2 , the relationship is:

$$r^2 = R^2 / \exp(180)$$

$$r = R / \exp(90) \text{ radius substitution}$$

$$M = m \cdot \exp(180) \text{ mass substitution}$$

APPENDIX 6: GRAVITATION.

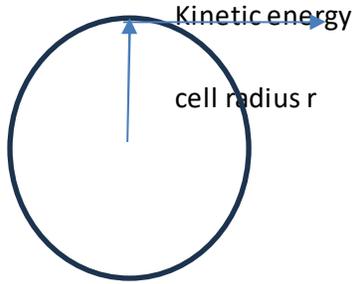
For gravitation and large space, we consider velocity V, radius R, and central mass M as the variables (capital letters for large space and lower-case r, v, and m for quantum space) that determine the geodesic. A geodesic is the curved surface where an orbiting body obeys the Newtonian equation $R = GM/V^2$ where G is the gravitational constant. G large space = G for quantum space with mass substitution $M = m \cdot \exp(180)$ and radius substitution $R = r \cdot \exp(90)$. Gravitational relationships define geodesics as surfaces where particles orbit.

At any time during expansion		
Large space		Cellular Space
		With substitutions:
		$R = r \cdot \exp(90)$ and $M = m \cdot \exp(180)$
$R \cdot V^2 / M =$	$G = G$	$r \cdot \exp(90) \cdot V^2 / (m \cdot \exp(180))$
$R \cdot V^2 / M =$	$G = G$	$(r \cdot v^2 / m) / \exp(90)$

Figure 7 Origin of $(1/\exp(90))$ for gravity.

This is the source of $1/\exp(90) = 4.2e-40$. This can be called a coupling constant and compares with published value $5.9e-39$ but physicists admit that they don't have a theory for quantum gravity. When measurements are made at the large scale, as must done to determine G, the above derivation indicates that we should multiply large scale values (RV^2/M) by $1/\exp(90)$ if we expect the same G. Geometric and mass relationships give the cell "cosmological properties". The extremely small value $1/\exp(90)$ is the scale value (coupling constant) for gravity. Velocity $V = v$ for small scale and large-scale proton orbits.

The observation that gravitation is constant reveals the relationship between expansion and the real world.



$$G=RV^2/M=rv^2/M$$

$$(vM/VM)^2=(r/R)$$

$$ke/KE= r/R$$

$$ke= KE*(r/R)$$

$$KE \text{ initial}= 10.1 \text{ MeV}$$

$$R \text{ initial}= 7.045e-14 \text{ meters}$$

$$r= 10.1*7.045e-14/ke \text{ also written as } ke=10.1*7.045e-14/r.$$

Kinetic energy (ke) and radius are related by gravitation. The cell radius decreases with time. The straight-line model specifies the radius, and the relationship above gives the kinetic energy at that radius, starting at 10.1 MeV/proton. Kinetic energy determines the temperature and other properties of the expanding universe.

Origin of the gravitational constant G

The filled sphere zero net energy (straight line) expansion model was recently described by the author [12]. Previously the author documented the origin of the gravitational constant, G [28]. G is related to the initial radius of the universe in the straight line model $8.04e12$ meters. The proton model provides the number of protons in nature. With $\exp(180)$ protons and three dimensions, there are $\exp(60)$ protons on the spheres (cells) along a radius. The key radius $8.04e12=\exp(60)*7.045e-14$ meters. Fundamental time progresses around the surface of the cell by repeating increment $t= 7.045e-14*2\pi/C=1.47e-21$ second/revolution.

Derivation of gravitational constant G without any gravitational uneven influence by using the inertial force on a single proton orbiting a cell. The required velocity comes from the proton model.

$G=rv^2/m=7.0446e-14*7.401e7^2/1.6749e-27$	$6.6742E-11$
--	--------------

Each neutron on the surface of the small sphere is its own entity. Gravity depends on the number of particles, and the curvature of the cell ($r=7.04e-14$ meters) not where they are.

Proton	
N values for mass	E=e0*exp(N)
12.432	5.076
15.432	101.947
12.432	5.076
13.432	13.797
12.432	5.076
13.432	13.797
W components	E=e0*exp(N)
-10.432	
10.408	0.671
10.136	0.511
0.296	2.72E-05
90.0000	
sum	130.052
mass (MeV)	2.317E-28

Entangled Neutron mass and electron.

Neutron model data for gravitation.

The gravitational energy fields total $3*0.687+0.671= 2.801$ MEV.

The quark mass of the neutron = $101.95+13.8+13.8+0.511=130.0$ MeV = $2.317e-28$ Kg. [proton-space model].

Radius r de Broglie= $hC/E=6.58e-22*3e8/130.00= 1.518e-15$ meter.

Mneutron (mass only plus ke) = $1.675e-27$ Kg (939.57 MeV)

Mass only= $2.317e-28$ Kg (130.00 MeV)

$G=hC/Mm*(1/exp(90))$

$G=6.58e-22$ MeV-sec* $3e8$ m/sec/ $(1.675e-27$ Kg* $2.317e-28$ Kg)* $1.602e-13*(1/exp(90))$

$G=6.674e-11$ Nt m²/Kg²

This is the source of the gravitational constant at the de Broglie scale 1.518e-15 meters.

$G=6.674e-11=6.58e-22$ MeV-sec* $3e8$ m/sec/ $(1.675e-27$ Kg* $2.317e-28$ Kg)* $1.602e-13*(1/exp(90))$.

The mass values in the proton model have been divided by exp(90). This could mean that the mass values are entangled. The associated N values are X, Y and Z positions of entangled electrons. The electron itself is divided by exp(90) in Figure 2 above. Entangled electrons are a network. This may be the key to memory of brain activity.

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