

Article

Mind in Mind: Ongoing Creation

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Abstract

We can believe that Mind in mind is fundamental and act accordingly. This is central to many traditional religious beliefs. One way to view religion is the act of seeking fundamental truths and one way to view the purpose of creation is ongoing creation. We can be in awe of nature similar to the way religions revere personalities and core concepts. There could be two domains: (1) outside our time and space (information), and (2) our normal energy domain. It makes sense that the Mind of creation would have a very different perspective. In this analogy, the Mind perspective might be similar to the dreamer while our mind's perspective is normal space time. We experience reality through wave equations. We will discuss two perspectives of Schrodinger wave function collapse that appear to represent an instantaneous connection.

Keywords: God, mind, spacetime, wave function collapse, dream, Creator.

The idea that nature originates as a series of separations is an old idea, for example, recall that Genesis contains the words “So God made the expanse and **separated the water** under the expanse from the ... as **Genesis 1:7** ends with the phrase 'from the **water** above it [the expanse]'. Two phrases from Genesis are “in the beginning was the word” and “a thousand years is as a day”

Everything we know is inside time and space. But one of the separations could be: Outside time and space vs. inside time and space.

It is hard to think about “outside time and space”, but think about a dream. The dream is pure information and the dreamer is outside of the dream itself. Imagine that you are inside the dream and that space and time are very real to you. There are two perspectives. The dreamer's perspective would be outside the time and space of the dream.

This paper examines the possibility of a different perspective of time and space. There are some clues from relativity and quantum mechanics. One of the basic precepts of relativity is that moving clocks run slow. At velocity C , time apparently stops. Also distance is zero if time stops (distance is $C \cdot \Delta \text{time} = C \cdot 0 = 0$). Energy $E = h\nu = h \cdot \text{frequency}$ and if vibrations stop there is no energy. There could be two domains; (1) timeless and (2) our normal energy domain.

It makes sense that the Mind of creation would have a very different perspective. In this analogy, the Mind perspective might be similar to the dreamer while our perspective is normal space time. We will discover two perspectives of Schrodinger wave function collapse that appear to represent an instantaneous connection between Mind and mind

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Information

Consider probability one as a beginning condition. Probabilities 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 occurs out of all number possibilities. Probability one as a beginning condition means comparisons are unity and have not yet been separated. Information is related to probability; the lower the probability the higher the information content. Our brains are information based, compare experiences and build context. Our brains build information models of reality that include time, space and energy.

Number of particles

Initially there was a probability for many neutrons (that decay to protons, electrons and anti-electron neutrinos) to make up the universe. The overall probability was 1 because the universe's mass does indeed consists of these particles. But each proton was improbable because it is made of improbable components like quarks [14][1]. There is a relationship between probability and energy. We can evaluate the probability of particles that makes up the neutron/proton if energy ratios are probabilities, i.e. $p=e_0/E=1/\exp(N)$, where e_0 is a small energy constant. This leads to the equation $E=e_0*\exp(N)$. Probability ($p=e_0/E$) is information by Shannon's formula [12] Information = $-\ln p$. Nature's particles consist of information and energy ratios.

Appendix 1 contains sets of logarithmic energy correlations for probabilities ($p=1/\exp(N)$) of the neutron/proton components (called fundamental N values where $E=e_0*\exp(N)$). The probability of one neutron is $1/\exp(180)=1/\exp(90)*1/\exp(90)$ because mass and fields are both improbable and probabilities multiply. But probability was 1 in the beginning and the low probability of a neutron was an enormous separation. It appears that probability was returned to unity by duplicated the neutron $\exp(180)$ times. Specifically, $P=1=$ probability of each neutron * number of neutrons = $1/\exp(N)*\exp(N)$. Like lottery tickets, if you buy all of them the probability is 1 that you will win the lottery. Reference 13 justifies the value $\exp(180)$ for the number of neutron/protons in nature.

Schrodinger's equation and information

Many physicists believe that everything consists of wave functions. These functions are producing nature similar to the way computers use information to produce output. The wave function output is perception within an information based network.

The Schrodinger wave function equation described by MIT as unitary evolution [14] has a simple solution: Probability $P=1$ in the left hand side (LHS) of the Schrodinger equation is equal to the multiple of complex conjugates $\exp(iEt/H)*\exp(-iEt/H)$ in the right hand side (RHS) where $\exp(iEt/H)$ stands for the natural number e to power (iEt/H) , i is the imaginary number, $H=$ Planck's constant, E is field energy and time t is the time around a quantum circle at velocity C. The number 1 has been separated into two expressions that represent waves. The RHS complex conjugates contain energy separations of interest that repeatedly come back together. Sinusoidal waves vary with $\exp(i\theta)=\cos\theta+i\sin\theta$ as θ increases. They are circles

with a vertical imaginary axis and a real horizontal axis. Results are restricted to the unitary point where the wave function collapses on a quantum circle with $E_t/H=1$. P on the LHS is information about energy on the RHS. But wave function collapse can contain a lot of information because the RHS equations consist of many energy terms balanced to zero overall.

The beginning of energy

Consider a beginning with zero energy. This avoids the endless argument that things are made of other things, ad infinitum. In the beginning perhaps the creator separated information into meaningful equal and opposite pairs that come into existence at the same time [14]. By pairs we mean that some energy is positive and other energy is negative by the same amount. Inside the dream information is viewed as energy but it is zero overall. Positive energy is mass plus kinetic energy (energy of motion) and negative energy is field energy like electromagnetic fields.

The separation proposed is: Outside our time and space (information) vs. inside normal time and space (mass with kinetic energy and fields).

From inside the dream we see mass plus kinetic energy but suspect something strange about the difference between field energy and mass. They have been separated from zero into two different kinds of energy that can never exchange properties. Fields travel at C but mass with a large amount of kinetic energy can only approach C. However, according to the Schrodinger equation, their complex conjugates multiply to 1. According to the neutron and proton models below, the strange field regime is half of everything. Fields and mass definitely interact because fields attract mass causing the mass to travel in quantum circles that underlie the fundamental forces of nature.

Where are nature's laws?

I believe the neutron/proton are the repository of nature's laws. These nucleons are wave functions that contain sub-components consisting of separated energy terms. "*How Nature Computes*, Prespacetime Journal, May 2019 [15], shows that entities in the Standard Model originate in the neutron and proton. When the Schrodinger equation contains the right terms it "computes" the neutron and proton. The result includes the mass, kinetic energy and field energy of orbits for fundamental forces. But particles are able to move in any direction if the forces allow. Nature's creativity includes the changing configurations of protons, electrons, etc. that are able to move and form objects including us. We appear to be nature's temporary perceiver and memory of these configurations.

Separated energy pairs in the proton and neutron models

The diagrams below shows the energy pairs inside the neutron and proton [15]. The Schrodinger fundamentals result is $E-E=0$.

The logarithm of the Schrodinger equation has equal and opposite energy pairs

The anti-log of the energy pairs is $\exp(iEt/H) \cdot \exp(-iEt/H)$

The above expression multiplies to P=1 with the following restrictions.

Energy zero (E-E=0) but each energy has a probability with $p/p=1$.

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

Energy pairs can be separated from time pairs as follows:

take the natural log and divide both sides by i

$$0 = iE/H - iE/H$$

$$0 = Et/H - Et/H$$

$$0 = (E-E) \cdot (t/H - t/H) \text{ with } E = 1/(t/H)$$

$$0 = (E-E)$$

The left hand side of each of the diagrams below is E for mass plus kinetic energy and the right hand side of each of the diagram is field energy E. The diagrams are models of the proton and neutron. The Schrodinger equation and these specific E values are built into nature in a way that they produce the proton and neutron masses, although the overall energy for each is zero.

$1 = \exp(iE/H) \cdot \exp(-iE/H)$ E ← → E				$1 = \exp(iE/H) \cdot \exp(-iE/H)$ E ← → E			
	Mass plus Kinetic Energy MeV	Strong Field Energy MeV	Gravitational Field Energy MeV		Mass plus Kinetic Energy MeV	Strong Field Energy MeV	Gravitational Field Energy MeV
Down Quark	4.36	-753.29	Down Strong Field	Down Quark	4.36	-753.29	Down Strong Field
Kinetic E	739.470	-0.687	Grav Field component	Kinetic E	739.470	-0.687	Grav Field component
Up Quark	2.49	-101.95	Up Strong Field	Up Quark	2.49	-101.95	Up Strong Field
Kinetic E	89.993	-0.687	Grav Field component	Kinetic E	89.993	-0.687	Grav Field component
Up Quark	2.49	-101.95	Up Strong Field	Up Quark	2.49	-101.95	Up Strong Field
Kinetic E	89.993	-0.687	Grav Field component	Kinetic E	89.993	-0.687	Grav Field component
E-E match	0.000			E-E match	0.000		
neutrino ke	-0.671						
Fusion KE	10.151	$E \cdot W_{\text{fusion}} = 10.151 \cdot (1 - \exp(-2/2))$		Fusion KE	10.151		
E/M field	-2.722E-05			ke	0.622	-0.622	field
data ae neutrino	-2.025E-05	-0.740	Grav field component	data		-0.740	Grav Field component
938.272013 Proton M	938.272013		-2.801	939.565346 Neutron mass (MeV)	939.565346		-2.80114
outside electron	0.511		Grav Field Total	t neutrino	0.740		Grav Field Total
proton Kinetic E	0.111	-0.622	field	Expansion P	10.151		
v neutrino	0.671			Expansion K	10.151		
t neutrino	0.740			Fusion release			outside
Expansion	10.151			Total M+KE	960.608	Total Field	-960.608
Expansion	10.151						neutron
Fusion release							
Total M+KE	960.608	sum m+ke	-960.608				

The diagram on the right is the neutron that decays to a proton, electron and anti-electron neutrino on the left. The masses (in red) are exact models within several significant digits. The total energy is 960.608 MeV because these tables represent these nucleons imbedded in space and time. Neutrons have potential energy, expansion kinetic energy and neutrinos outside their measured mass. As atomic fusion occurs, additional energy moves outside (the arrows). Protons (upon decay) eject the electron, 0.11 MeV of kinetic energy and an anti-electron neutrino. Space time is defined by the gravitational field energy (2.801 MeV (0.687*3+ 0.740) in the RHS of each of diagrams (in red). This field energy also defines gravity.

Small scale space and time

The value $E_t/H=1$ is the point where conjugates multiply to 1 on a quantum circle according to the Schrodinger equation. It is the only real point.

$$t = 2\pi R/C \text{ (the time for a wave to travel around the quantum circle at velocity } C)$$

$$E (2\pi R/C)/H=1 \text{ (substitute time into } E_t/H)$$

$$R=HC/(2\pi)/E \text{ (solve for } R \text{ the radius of quantum circle)}$$

Evaluate the constant $HC/(2\pi)= 1.97e-13$ MeV-meters is hC , where $h=H/(2\pi)$ is Planck's reduced constant ($6.58e-22$ MeV-sec).

The gravitational field energy 2.801 MeV from the neutron mass model (diagrams above and Appendix 1) is the source of space and time.

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

The radius of a quantum circle with this field energy is $7.04e-14$ meters. The time around the circle at velocity $C=1.47e-21$ seconds. These values are fundamental to space and time. I believe time advances in increments of $1.47e-21$ seconds.

Gravity

The defining relationship for the gravitational constant G uses potential energy value 20.3 MeV from the models above. (Expansion of the universe starts with 10.15 of potential energy and 10.15 of kinetic energy but in the fully expanded condition each proton contains 20.3 MeV of gravitational potential energy.) An equivalent defining relationship for G is included in Appendix 3. It is shown that G is simply potential energy $20.3 \text{ MeV} * \text{radius } 7.045e-14 \text{ m}$. It depends on the small factor $1/\exp(90)$ that comes from relationships in Appendix 3 called cellular cosmology, the conversion constant $1.6e-13 \text{ Nt-m/MeV}$ and the mass of two attracting protons ($1.675e-27 \text{ kg}$). Cellular cosmology is based on area equivalence $r=R/\exp(90)$ as described in Appendix 3 and $\exp(180)$ protons [4][9].

$G=10.15124*2*7.045e-14*1.602e-13/EXP(90)/1.675e-27^2$		
$6.69E-11 \text{ Grav Const Nt m}^2/\text{Kg}^2$		

Cells contain protons and they allow us to understand the large universe with principles established at the small scale. This equation can also be written without the small factor $1/\exp(90)$ and a central mass of $\exp(180)*1.67e-27=2.49e51 \text{ kg}$ attracting a proton.

$$G=20.3*1.6e-13*8.59e25/(2.49e51*1.67e-27)$$

$$G=6.69e-11 \text{ Nt m}^2/\text{kg}^2$$

The large circle has radius $7.045e-14 * \exp(90) = 8.59e25$ meters. Gravity is determined by the large scale and cellular cosmology is the small scale equivalent. This provides an understanding of gravity and a bridge from the quantum scale.

Large scale space and time

Again, $E_t/H=1$ converts to $R=(1.97e-13 \text{ MeV}\cdot\text{m})/E$.

$R=1.93e-13/(2.801/\exp(90))=8.59e25$ meters defines the range of the gravitational field. The range is high because energy in the equation is low; only $2.801/\exp(90)$ MeV. The range is consistent with the gravitational field being shared. Shared energy indicates a network.

Two perspectives and instantaneous networks

Space (R) is determined by gravitational fields that travel at light-speed $C= 3e8$ m/sec in the quantum relationship $E_t/H=E/H*(2\pi R/C)=1$. Wave functions collapse is probability $P=\exp(iE_t/H)*\exp(-iE_t/H)=1$. They travel at C and from their perspective the waves collapse in zero time and $P=1$ is stationary since waves are in opposite directions. The collapse point is in a timeless distance less domain. All $P=1$ points coincide meaning they are not in our space time. Recall that P in Schrodinger's equation is information. It makes sense that they might exist in an information space time analog of our space time. There are two perspectives of the collapse point that intersect. Perspective 1: information fills space and perspective 2: energy ratios and particles fill space. From our below C perspective, we see a large universe with time, space and many protons. A proton is like a sophisticated pixel in a display. Based on energy/information sharing it appears that these pixels/particles are networked outside our space and time. This would be an information network.

Potential implications

We could be participating in the ongoing creativity of the Mind of creation that has a different relationship to space and time. In this analogy we are inside the "dream". We live in space time that ultimately results in life consisting of many protons, atoms, etc. Information about configurations of atoms (and thoughts) may be available to Mind outside our space time. This could provide the bridge we need to a timeless memory (reminiscent of religious texts). An extension of these ideas suggest a "shadow" information universe or perhaps an overarching mind that can be selective. Another analogy is interesting . Searching the internet is selective and we can visit different information depending on our interests. Compare this to our mental life. We are limited to one unfolding reality in linear time. We are also limited in space because our mass can only travel at a limited speed.

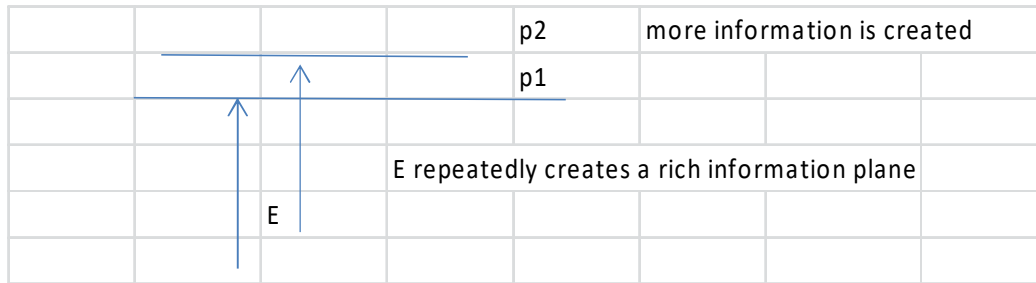
Interaction of the protons in small scale space time produce our reality

Conventional physics describes the following processes:

1. As expansion occurs gravitational kinetic energy is converted to potential energy.
2. Particles fall into each other's gravitational field and create structures.

3. As fusion occurs, the neutron and proton fall into each other's strong residual fields. Energy is released.
4. As hydrogen is fused in stars, atoms with complicated electronic structures develop.

Chemistry is now possible and electro-chemical networks like our brains evolve. Complexity increases but everything is still a network. The perceptual experience (p1 below) is an information rich network that is repeatedly updated as time moves forward.

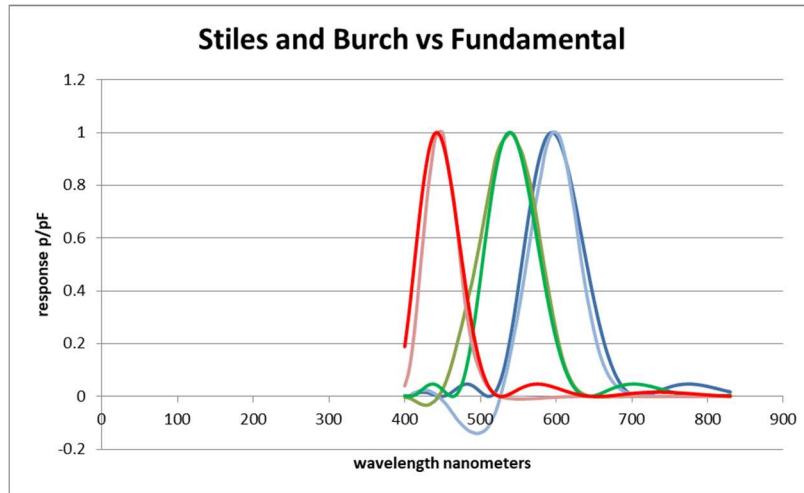


Creation and Consciousness

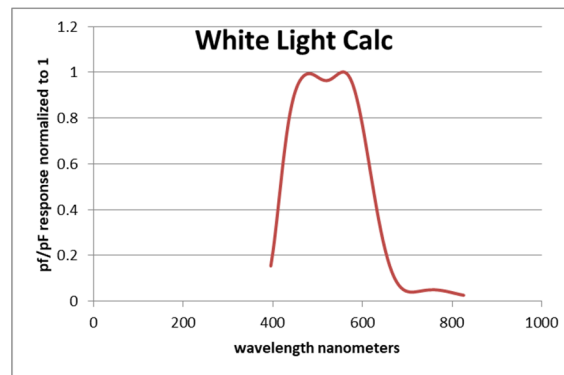
The math above supports the creation of many neutron→protons from zero energy and probability one through separations. Forward time by several billion years and gravitation has created stars and planets. Simply stable particles like protons have become atoms and atoms are now bonded into chemicals. Electrons orbit the atoms. There are now places where life can exist. We arrive but don't actually know anything except through our brain. Our window is through senses like sight, sound, touch, taste, etc. and reality is the information our brain constructs compared with our expectations and experiences [2][6]. Probability is involved because reality is compared to everything else we have or could experience. The information content is larger if a new experience is unique or unusual. Our brain is a network of nerve cells. Networks are one of the few places in nature that create information because they strengthen and use some network connections over others. We are creative. The more unlikely or the harder the new concept is, the more information is created. One definition of intelligence is seeing differences. Looking beyond ourselves we can guess that a network like a mind could create separations.

Observation and the electron

Changes in the electromagnetic field energy are associated with absorption and emission of light. This occurs as the electron orbits change by quantum amounts. Color vision [10] is an excellent example of how our brain perceives energy changes. The $E=0$ and $P=1$ constraints in Appendix 4 show what happens as kinetic energy is changed by $E=2.02e-5*\exp(N)$, where N is 1,2,3 or 4 times 0.0986. The result is a series of peak wavelengths related to color vision [12]. Electron orbits are slightly changed by light absorption and create a probability ratio called Pf/PF in the graph below. The equation [3] is from a famous physicist named R. Feynman. This allows us to mathematically simulate color vision with our computer. The peak responses and off peak responses is shown below compared with color vision data [5] on the human eye.



Probabilities neatly represent white light when three colors are combined.



The mental experience of color vision is proof of a link between perception and energy. This is important because it shows that outside energy changes cause specific meaningful experiences inside the brain. We knew that everything was information based on separations and energy ratios but we did not know that the brain uses the same information values (N) that define energy separations ($N=1,2,3$ or $4*0.0986$ are part of the code that underlies the neutron/proton). Outside reality and internal reality are both information based and use the same code. This is a huge clue regarding separations from energy zero and probability 1.

What we know about separations

1. An information code I call N for the neutron/proton existed in the beginning. It specifies the separations of mass, kinetic energy and field energies inside the neutron/proton. The neutron/proton is the repository of nature's laws.
2. Particles are improbable but duplication of neutron/protons returns the probability to 1. The universe is complex because there are many neutron/protons in gravitationally dominated space and time.

What we suspect about separations

There is reason to suspect that the time and space we experience may not be like the creator's. The universe is definitely information based but information needs a source.

Conclusions

Our information based brain uses senses and networks to gain and process energy/information into sophisticated models of reality. Every particle has information associated with it and the brain can experience some of the changes (color vision example). Remarkably the information it uses is the same information (N) that defines nature's energy separations. Our brains have their own evolved neural networks and we know that networks can create information [2][5][8]. All it takes in a learning network is pathway selection and repetitive use. We are late comers able to interact with nature that pre-dates us because we are part of nature. We experience a property we call consciousness [11] and participate in ongoing creation.

We start to understand nature when we learn that creation is based on separations. From our perspective we know what the observable universe is made of. It is made of information and energy. Nature displays protons and neutrons [15] with the Schrodinger equation [Appendix 2] that contains energy terms that define space and time. From this, we know that the beginning conditions were probability 1 and zero energy. It appears that protons are the repository of nature's laws [13][14] but also can be viewed as pixels in a sophisticated network.

But something is missing in this view of nature. We do not know where the information came from that became the laws of nature. We attempted to answer this question and imagined that the Mind of creation separated information that became energy separations in normal time and space.

We know that time slows and perhaps stops at velocity C. The somewhat strange, perhaps timeless, field regime associated with C is half of everything according to the models above.

This leads us to suspect that there may be connections outside of space time, perhaps another separation hard for us to imagine because we live inside space and time. We used an analogy to help us imagine this separation. A dreamer produces information images with a perspective outside of the dream itself. The analogy represents the Mind of creation outside space time connected to our reality within space time. This leads to the possibility that our mind is inside Mind (not a new thought).

We needed to understand space time and what may be outside space time. Space and time are determined by the gravitational field energy that may be information in another perspective. We discovered that there are also two perspectives of wave function collapse. Points are simply probability 1 but also appear to be protons distributed throughout space. Gravitational energy sharing causes us to suspect that there are connections between the two perspectives. The connections occur at the information interface $P=1$ between a timeless information based perspective and our normal space time perspective.

Sir James Jeans said, that "the universe begins to look more like a great thought than a great machine". James Allen said "Mind is the master power that molds and makes". We can believe that Mind in mind is fundamental and act accordingly. This is central to many traditional

religious beliefs. One way to view religion is the act of seeking fundamental truths and one way to view the purpose of creation is ongoing creation. We can be in awe of nature similar to the way religions revere personalities and core concepts.

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Appendix 1: Review of neutron/proton mass model

What information was available at the beginning?” The neutron/proton is known to contain subcomponents and is known to decay to a proton and electron. The information that creates the neutron/proton must have been separated in the beginning. The ratio $p=e0/E$ with $E=1/exp$ can be written that $E=e0*exp(N)$, but $e0/E$ consists of other probabilities that multiply, one of which is the electron. N for the electron = $10.33-0.29=10.136$. Other N values can be found in the following table. The total for each column is 90. This information is a plan for the neutron/proton and it apparently existed in the beginning.

	Neutron particle and kinetic energy N		Neutron field energy N	
Quad 1	15.43	quark 1	17.43	strong field 1
	12.43	kinetic energy	10.43	gravitational field component
Quad 2	13.43	quark 2	15.43	strong field 2
	12.43	kinetic energy	10.43	gravitational field component
Quad 3	13.43	quark 3	15.43	strong field 3
	12.43	kinetic energy	10.43	gravitational field component
Quad 4	10.41		-10.33	
	-10.33		10.41	gravitational field component
Quad 4'	10.33	pre-electron	10.33	
	0.00		0.00	
	90.00	Total	90.00	Total

Neutron/proton mass model

The author developed a neutron/proton model (that decays to a proton, electron and anti-neutrino) approximately 25 years ago and applied it to important natural processes. More recently it was discovered that it is supported by relativistic wave equations with the restrictions probability 1 and energy 0. Details of the neutron/proton model, including its derivation from the Schrodinger equation [13] are in references 15.

	N for Neutron Energy Interactions				Mass, Kinetic Energy and Fields for Neutron=0						Expansion		Gravitational		
	mass	Energy	S field	Energy	Mass	Difference	Weak KE		KE	Strong field	Field				
	ke	MeV	G field	MeV	MeV	MeV	MeV	MeV	MeV	MeV	MeV	MeV	MeV	MeV	
Quad 1	15.43	101.95	17.43	753.29	101.95	652.03								-753.29	
	12.43	5.08	10.43	0.69			753.98	-753.98							-0.69
Quad 2	13.43	13.80	15.43	101.95	13.80	88.84								-101.95	
	12.43	5.08	10.43	0.69											-0.69
Quad 3	13.43	13.80	15.43	101.95	13.80	88.84			10.15		-101.95				
	12.43	5.08	10.43	0.69					10.15		10.15				-0.69
Quad 4	-10.33	0.00	-10.33	0.00											
	10.41	0.67	10.51	0.74					0.671 t neut ke						-0.74
Quad 5	10.33	0.62	10.33	0.62		0.62					-0.62				
	0.00	0.00	0.00	0.00											
	90.00	sum	90.00	sum	129.54	799.87	939.5649957	0.671	20.30		-957.81				-2.80
									NEUTRON MASS		Total m+ke	Total fields			
											Total positive	Total negative			
											960.54	-960.61			

The left hand side of the neutron/proton mass model consists of 5 quads containing numbers that I call fundamental N values. Quads 1, 2 and 3 are quarks and quads 4 and 5 will decay to the electron. It contains conserved quantities. N's are conserved in each quad, i.e. 15.431+12.431=17.431+10.431. The five quads sum to N=90 at the bottom of the table for Mass and Kinetic energy and N=90 for Field Energy.

The right hand side of the table above describes the Energy= 0 constraint. Energy values from the left hand side of the table are re-arranged into the box to the right of the vertical solid line labelled "Mass, Kinetic Energy and Fields for the Neutron/proton". For each quad (example is quad1), mass 101.95 MeV is added to difference energy 652.03 MeV (753.29+0.69-101.95-5.08) and balanced to zero by field energies -753.29 MeV and -0.69 MeV. Quad results are added for the column at the bottom of the table. Mass plus kinetic energy simulates the neutron/proton mass, 939.565413 MeV. A similar proton mass model shows how the neutron/proton decays to a proton, electron and anti-neutrino. Field energy is shown in the two columns on the right side of the table. An additional separation occurs which is 6 times

5.08 =30.45 MeV kinetic energy. This kinetic energy is associated with fusion energy (10.15 MeV) and expansion energy (20.3) MeV.

Appendix 2: Review of solution to Schrodinger’s equation

The Schrodinger equation described by MIT as unitary evolution [13] has the following solution: Probability P=1 in the left hand side (LHS) of the Schrodinger equation is equal to the multiple of complex conjugates $\exp(iEt/H)*\exp(-iEt/H)$ in the right hand side (RHS) where $\exp(iEt/H)$ stands for the natural number e to power (iEt/H), i is the imaginary number, H=Planck’s constant, E is field energy and time t is the time around a quantum circle at velocity C. The number 1 has been separated into two expressions that represent waves, one representing mass with kinetic energy moving clockwise around a circle and the other representing equal and opposite field energy moving anti-clockwise around a circle. Overall energy in the circle is zero with positive and negative energy equal. The “wave function” collapse point represents probability 1.

The P=1 constraint and the E=0 constraint are further defined below. There are sets of four probabilities of interest that contain exponential functions $1/\exp(N)$.

Probability 1 Constraint

$1=p1*p2/(p3*p4)$ but each probability= $1/\exp(N)$

$N1=13.431$

$N3=15.431$

$N2=12.431$

$N4=10.431$

$p1=1/\exp(13.431)$

$p3=1/\exp(15.431)$

$p2=1/\exp(12.431)$

$p4=1/\exp(10.431)$

$1=1/\exp(13.431)*1/\exp(12.431)/(1/\exp(15.431)*1/\exp(10.431))$

These N values represent P=1, but it has four probability components. The fraction $0.431=1/3+\ln(3)-1$ will be explained in the section “Data check”.

Review of natural logarithms: Multiply probabilities by adding logarithms. Find the result with the anti-logarithm ($\exp(0)=1$).

P	$p1*p2=\exp(-i Et/H)*\exp(i Et/H)$
	with $Et/H=1$
multiply by adding the logarithms	
$\ln P$	$\ln(p1*p2)=-i+i=0$
P	$\exp(0)=1$

Example of exponent sign change:

$\exp(2)=7.39=1/\exp(-2)$

Energy= 0 constraint

Energy components are restricted to overall zero energy. Mass and kinetic energy are positive and field energy is negative. It will be shown that the Schrodinger equation becomes relativistic like the Dirac equation with P= 1 and energy= 0. The example math below is similar to Dirac’s development with $Et/H=1$. This separates energy terms from time terms.

Constrain Energy to zero

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

take the natural log and divide both sides by i

$$0 = itE/H - itE/H$$

$$0 = Et/H - Et/H$$

$$0 = (E-E) * (t/H - t/H)$$

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

$$0 = E1 - E1 \text{ and } 0 = t/H - t/H$$

Example:

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

$$ab - ba = 0$$

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

The example math above is expanded to give the energy =0 constraint with four components, each with matching complex conjugates.

$$1 = \exp(itE1/H) * \exp(-itE1/H) * \exp(itE2/H) * \exp(-itE2/H) * \exp(itE3/H) * \exp(-itE3/H) * \exp(itE4/H) * \exp(-itE4/H)$$

The natural log of the RHS is:

$$0 = (itE1/H) + (-itE1/H) + (itE2/H) + (-itE2/H) + (itE3/H) + (-itE3/H) + (itE4/H) + (-itE4/H)$$

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

$$E1 - E1 + E2 - E2 + E3 - E3 + E4 - E4 = 0$$

$$E1 + (E3 + E4 - E1 - E2) + E2 - E3 - E4 = 0$$

Evaluating E

Evaluating E in the RHS 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 were the potential for many neutron/protons, each with mass, etc. that would make up the universe. Specifically:

$P = 1 = \text{probability of each neutron/proton} * \text{number of neutron/protons} = 1/\exp(N) * \exp(N)$. The probability of each neutron/proton is $1/\exp(N)$. The neutron/proton itself is made of improbable components like quarks. We can evaluate the probability of particles that makes up the neutron/proton if energy is itself a probability, i.e. $p = e0/E = 1/\exp(N)$, where $e0$ is a small constant.

$$p = e0/E = 1/\exp(N), \text{ i.e. } E = e0/p.$$

With $p = 1/\exp(N)$, $E = e0 * \exp(N)$.

$$E1 - E1 + E2 - E2 + E3 - E3 + E4 - E4 = 0$$

Identify E as $E = e0 * \exp(N)$, using the same N values as the LHS.

$$0 = e0 * \exp(13.431) - e0 * \exp(13.431) + e0 * \exp(12.431) - e0 * \exp(12.431) + e0 * \exp(15.431) - e0 * \exp(15.431) + e0 * \exp(10.431) - e0 * \exp(10.431)$$

Mass plus kinetic energy will be defined as positive separated from equal and opposite negative field energy. $E1$ is the only mass term, $E3$ and $E4$ are field energy and the remainder is kinetic energy.

$$E1+(E3+E4-E1-E2)+E2-E3-E4=0 \text{ (rearrange)}$$

E1 is mass, (E1+E4-E1-E2)+E2 is kinetic energy.
 E3 and E4 are equal and opposite field energies
 mass1 + kinetic energy- field energy3-field energy4=0

Probability 1 in the LHS gives the probability of finding mass1 with kinetic energy at the collapse point on the circle defined by $\exp(iE1t/H)*\exp(-iE1t/H)*\exp(iE2t/H)*\exp(-iE2t/H)$, etc.,.

This provides the fundamentals for Appendix 3.

Appendix 3 Cellular Cosmology

Cells are defined by equating a large surface area with many small surface areas. This allows cellular cosmology to obey the rule “there can be no gravitational preferred position for mass” because all mass is on the equivalent of a large sphere. The number of cells in large R (representing the universe) is $\exp(180)$.

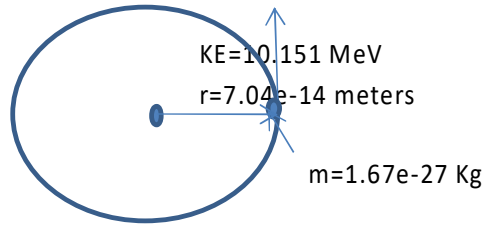
$$\begin{aligned} \text{Area} &= 4*\pi*R^2 \\ \text{Area} &= 4*\pi*r^2*\exp(180) \\ A/A &= 1=R^2/(r^2*\exp(180)) \\ R^2 &= r^2*\exp(180) \\ r &= R/\exp(90) \quad \text{surface area substitution} \\ M &= m*\exp(180) \quad \text{mass substitution} \end{aligned}$$

For gravitation and large space, we consider velocity V, radius R and mass M as the variables (capital letters for large space and lower case r, v and m for cellular space) that determine the geodesic (the radius with balanced inertial and gravitational force). The mass substitution is $M=m*\exp(180)$ and the surface area substitution is $R=r*\exp(90)$ for G large space= G cellular space.

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

When measurements are made at the large scale to measure G, the above derivation indicates that we must multiply cellular scale values ($r*v^2/m$) by $1/\exp(90)$ for equivalent G. Geometric and mass relationships give the cell “cosmological properties”. Velocity $V=V$ for both surfaces. Velocity V is the orbital velocity of a proton around the central small mass. A cell maintains nature’s gravitational constant (G) as cells expand the universe.

The Newtonian gravitational constant G originates in the calculation table below [4][9]. Values are from the neutron/proton model (Appendix 1). The gravitational constant is determined by a neutron (1.675e-27 Kg) with kinetic energy 10.15 MeV (velocity 4.3e7 m/sec) orbiting at radius 7.045e-14 m defined by gravitational field energy 2.801 MeV. The inertial force $f=mV^2/r*1/\exp(90)= 3.7e-38$ Nt. This force agrees with literature reviewed in reference 9. Excerpts are in Appendix 3. The two dimensional gravitational orbit (called a cell) is shown below.



GRAVITY		
		neutron
Neutron Mass (mev)		939.5654
Proton Mass M (kg)		1.675E-27
Field Energy E (mev)		2.801
Kinetic Energy/neutron ke (mev)		10.151
Gamma (g)=939.56/(939.56+ke)		0.9893
Velocity Ratio v/C=(1-g^2)^0.5		0.1458
Velocity (meters/sec)		4.383E+07
R (meters) =(hC/(2pi)/(E*E)^0.5		7.045E-14
Inertial Force (f)=(m/g*v^2/R)*1/EXP(90) Nt		3.784E-38
Calculation of gravitational constant G		6.551E-11
G=F*R^2/(M/g)^2=NT m^2/kg^2		6.69293E-11
Published by Partical Data Group (PDG)		6.6741E-11

Literature review: Calculation of gravitational force with accepted coupling constant

Literature [search Wiki] regarding a coupling constant for gravity is reviewed below. The gravitational coupling constant α_G is the coupling constant characterizing the gravitational attraction between two elementary particles having nonzero mass. α_G is a fundamental physical constant and a dimensionless quantity, so that its numerical value does not vary with the choice of units of measurement:

$$\alpha_G = Gm_e^2 / (\hbar c) = (m_e^2 / m_p^2) = 1.752e-45$$

where G is the Newtonian constant of gravitation; m_e is the mass of the electron; C is the speed of light in a vacuum; \hbar is the reduced Planck constant; m_p is the Planck mass.

This coupling constant can be understood as follows:

http://en.wikipedia.org/wiki
$\alpha_G = (m_p/m_e)^2 = 1.752e-45$
$m_p/m_e = 1836$, where $m_p/m_e = \text{proton/electron}$
$\alpha_G = 1836.15^2 * 1.752e-45 = 5.907e-39$
$F = (5.9068e-39) * \hbar c / R^2$

If R for the force calculation is 7.22e-14 meters, as proposed above, the force is:

$F=(5.9068e-39)*hC/R^2$			
	hbar		6.5821E-22 mev-sec
	hbar in NT-m-sec		1.05E-34 NT m sec
	hbarC in NT-m^2=K		3.16E-26 NT m^2
$F=(5.9068e-39)*K/R^2$			
$F=(5.9068e-39)*3.16e-26/(7.22e-14)^2=3.58e-38 NT$			
3.579E-38 NT			

If a neutron/proton and proton are separated by the fundamental radius, they give the correct force above. There is nothing wrong with considering cells since they obey Newtonian gravity.

Appendix 4: Color vision energy changes

Changes in electromagnetic field energy with base 27.2e-5 MeV is associated with absorption and emission of light. This occurs as the electron orbits change by quantum amounts. Color vision [12] is an excellent example of the Schrodinger equation in action. The E=0 and P=1 constraints below show what happens as kinetic energy is changed by $2.02e-5*exp(N)$, where N is 1,2,3 or 4 times 0.0986. The result is a series of peak wavelengths related to color vision [12]. For example if $3*0.099$ changes to $2*0.099$ the E2 change (inside the E= 0 constraint) is the wavelength for green light (485 millimicrons).

Energy zero	E1+	(E3+E4-E1-E2)+	E2	-E3-E4	
Energy zero		5.11E-01	-5.11E-01	2.46614E-05	-3.53E-05 -0

P=1 green $1/exp(10.13)*1/exp(0.197)/(1/exp(10.33)*1/exp(0))$

			-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 $2.02e-5*exp(N)$	→ 2.466E-05	2.025E-05	2	1	2.47E-05	2.23E-05	2.32E-06	535.34	blue
	N=.0986, .197, .296, .394	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	1.90E-06	652.05	