

## Convergence and the Grand Unified Theory

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### Abstract

This paper examines the relationship between the four fundamental forces and shows how, using fluid mechanics, electromagnetism, quantum mechanics and gravity, these forces converge on one solution just as Mathematics does. An equation for the universal processes is provided.

**Keywords:** Quantum mechanics; Gravity; Convergence; Fluid mechanics; Schrodinger equation

### Introduction

This paper shows how as Mathematics, namely Algebra, Linear Algebra, Geometry and Calculus, converge to one solution, so too does Fluid Mechanics, Quantum Mechanics, Electromagnetism, and Gravity converge to one solution, namely the Superforce. We begin with mathematics convergence and end with Cusack's Universal Equation. Cosmology and Quantum Mechanics are united.

### Permeability

We began over 4 years ago with this notion of Permeability. It still stands. It is calculated from the above equation of the circle:

$$2x^2 = \tan 60^\circ$$

$$x = \sqrt{2} * \sqrt{3} = [(E^2 + t^2)^{1/2}] * (t) = 2.4495$$

$$F/2.34495 = 2.667/2.4495 = 1.08 \text{ rads}$$

$$1.08 \text{ rads} = 62.3^\circ$$

$$\sin 62.3^\circ = 0.886 = \text{Permeability}$$

### Prime numbers

In the solution to the Reinmann hypothesis, the critical line for Prime Numbers is:

$$Y = e^z + \pi$$

$$\text{The first Prime Number} = 1$$

$$Y = e^1 + \pi$$

$$Y = 5.85 = 1/\sqrt{3} = \tan 60^\circ = \sin 60^\circ / \cos 60^\circ$$

From Geometry and the 30°-60°-90° triangle, we can see that R=1.

$$x^2 + y^2 = R^2$$

$$2x^2 = 1^2$$

$$x = 1/\sqrt{2} = \sin 45^\circ = \cos 45^\circ$$

$$\text{Universal Young's Modulus} = \pi - e^1 = 0.4233 = \text{cuz}$$

$$\text{cuz} = e^1 + \pi$$

$$-e^1 = e^z$$

$$-1 = z$$

z is the first prime number. Mass is formed at z=-1

$$e^{-1} + \pi$$

$$= 3.50$$

$$\text{cuz}^2 = 1/81$$

Mass

### Eigenvectors

Light=space. Space implies G

The rest of the universe follows at once - the crystal.

Time is a vector - an eigen vector. There is no degree of freedom with time. It flows forward and constant. It is Energy converted from PE to KE that changes with time [1-3].

$$11 \text{ Integrals of } \pi = 1/11! * \pi^{11} = 1356 \sim s$$

$$c = d/t = s/t$$

$$s = ct$$

$$\pi^{10} + c = 10! * \pi^{10}$$

$$1/t + t = 11! = 3.99! \sim 0.4 = 1/c^2$$

$$s = \text{ten } \int \text{ of } \pi = ct = 1/c^2 * c = c$$

$$s = c$$

$$s = s'$$

If we Integrate  $\pi$  10 times (N=10), we get space.

$$s = \int 0-10 \text{ implies } \pi$$

$$c = s = 2.9947$$

$$2.947/2.9979 = 305$$

Light is an Eigen value; not an eigenvector. In fact, light must be what an eigen value really is. Light reaches out in a spherical way. It isn't a vector. Time is the eigen vector [4].

$$c = 2.9979 = d/t = s/t$$

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**Received** December 16, 2016; **Accepted** January 23, 2017; **Published** January 25, 2017

**Citation:** Cusack P (2017) Convergence and the Grand Unified Theory. J Phys Math 8: 211. doi: [10.4172/2090-0902.1000211](https://doi.org/10.4172/2090-0902.1000211)

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$s/t=(4/3)/ t=2/9979$  (really, light is a derivative or it is 3 as it approaches max value).

$$t=0.4$$

$$(s/t) \delta t=(|E||t|\sin \theta)' \delta t$$

$$s \delta t * 1/t \delta t=s \delta t -\ln t v-\ln t=\sin 1 -\ln 1=\sin 1$$

$$\sin 1=\delta E/\delta t * (\delta t/\delta t)* \cos t$$

$$\text{DOT PRODUCT}=\text{CROSS PRODUCT WHEN } t=1, \delta E/\delta t=1$$

$$\delta E/\delta t=\sin 1/\cos 1$$

$$E=\int \tan t=\ln \cos t$$

$$\sin \sin t=\cos t$$

$$E=\ln (\cos t)$$

$$1=\ln (\cos t)$$

$$e^t=\cos t$$

derivative

$$e^t=\sin t$$

$$\sin t=\cos t$$

$$E=1$$

$$\sin^{-1}(0.4)=23.57 \text{ degrees}$$

$$\ln (23.57 \text{ degrees})=\pi=\text{Operator}$$

The universe is an in-homogeneous Lorentz Group. There a ten real parameters.

I think where Einstein was going wrong is that he thought space and time were independent, if I understand relativity correctly. They are not. Space is the cross product of Energy and time vectors and thus completely dependent upon one another. Einstein couldn't find the Superforce because he did not know the universe is being compressed by sin theta. And of course, there is no such thing as a vacuum, at least inside the universe. Quantum Mechanics doesn't need to be recast because Einstein was incorrect. QM fits within my theory perfectly well.

Above is THE solution to Mathematics. It encompasses the 4 branches of Mathematics. It is the simplest way to explain and show the universe [5-6].

### Convergence

The 4 branches of math: Algebra, Calculus, Geometry and Matrices are all about convergence. Where do they converge? Calculus converges on  $y=y'=e^x$ . Algebra converges on the Golden Mean  $t^2-t-1=E E=z-1$  when  $t=0$ . Geometry converges on the Area and circumference of a circle  $R=2, \pi$ , and on the Cartesian, Spherical, and Cylindrical Coordinates [7,8]. And Matrices converge on the eigenvector= $\sqrt{3}$  and eigenvalue=3 Convergence occurs at the first prime number given by  $Y=e^e+\pi, z=-1$ .

### Why The Gravitational Constant Is 6.67?

$$\delta^2 E/\delta t^2=G$$

$$\int=\delta^2 E/\delta t^2=\int G=0.4233$$

$$\int G=cuz$$

$$6.67=0.4233x$$

$$x=15.75$$

$$100-15.75=84.24=\sin \theta=\cos \theta$$

$$\int G=cuz$$

$$6.67X=0.4233$$

$$X0.0635$$

$$1/X=15.75=1-\sin \theta$$

Integrate

$$\ln X=1-\cos \theta$$

$$\ln X=1-0.8415=0.1585$$

$$X=\theta$$

### Gravity waves

So with the discovery of "Gravity Waves", predicted by Einstein, I wondered if and how this discovery fits in with my theory. It does.

The collision of the black holes would be akin to a giant sink of the universal fluid. This would cause a draw down of the surrounding fluid. See illustration below.

However, I don't think that is what is happening. What is happening is that the scientists are encountering the edge of the universe. Recall that the universe is egg shaped with axes  $1 \times 8 \times 22$  or  $3 \times 24 \times 66$  LY. Consider the short axis.

$$3 \text{ LY} * 365.25 \text{ days/yr} * 24 \text{ Hours/Day} * 3600 \text{ sec/Hr} * 30,000 \text{ Km/sec}=2.8188 \times 10^{12} \text{ km}$$

If we consider the draw down to be exponential,

$$e^2=2.8188$$

$$\ln e^2=\ln 2.8188=0.4004=t$$

$$t=1/2\pi \text{ rads}=0.4$$

Clairnaut:

$$E''-E=0$$

$$t^2-t-1=0 \quad 2t-1=0 \quad 2=G=E''$$

$$1/[t^*G]=1/(0.4004)(2)=1.249 \sim 1.25 \sim 1.3 \text{ BLY}$$

This is the distance that the Black hole collision was thought to have occurred.

So this discovery of Gravity Waves could fit in to my theory.

### Eigen Function and Electromagnetism

$$t=-0.618+1618=2.2236$$

$$t^2-t=0.1236$$

$$t(t-1)=1/81 \quad t=1/8=0.01236$$

$$t=1/81=M$$

$$F=\sin t=\sin (1/81)=1/\sqrt{2}=\sin 45^\circ=\cos 45^\circ$$

As F cycles, a charge like phenomenon dissipates on the Energy parabola (Characteristic Equation or Eigen Equation). This is why we sense quantum mechanics.

$$G=\pi/\ln 1.618$$

$$G * \text{Ln } 1.618 = \pi$$

$$e^{G*} 1.618 = e^\pi$$

$$1/0.618 = e^\pi / e^G = e^{\pi-G}$$

$$x = 1/(x-1)$$

$$x = t$$

$$e^{\pi-G} = 1/t - 1$$

$$E = 1/t$$

$$e^{\pi-G-t} \cdot e^{\pi-G} = 1$$

Taking Ln of both sides,

$$\pi - G - t - \pi + G = 0$$

$$-t = 0$$

$$t = 0$$

$$1/t \text{ E} = \text{Infinity}$$

$$t = 0, \text{ E} = \text{Infinity}$$

Quantum Packages are released at every cycle of  $\pi$ . Human Perception is  $\text{freq} = 1/\pi = 31.8 \text{ Hz}$

When the continuous charge is built up drop by drop over this time, a quantum is released. This is when the Energy of  $\sin + \cos$  is maximum, or its slope is 0.  $\partial E/\partial t = 0, t = 1$

The universe is really continuous is the Spiritual World. Humans however have evolve to sense only the E max. Why?

$$Q = \sin \theta \text{ t} = 1. \text{ E} = 1$$

$$\text{Integral } dQ/dt = \text{Integral } \pi$$

$$Q = \pi Q$$

$$\pi = Q/Q = 1$$

$$= \text{quanta}$$

$$\text{Quanta} = n * 1$$

$$F = \sin \theta$$

$$\partial F/\partial t = \cos \theta$$

$$\theta = \pi/4 = 1/\rho$$

$$t = 1/\rho = E \text{ E} = \rho = 0.127$$

$$1602/1273 = 79.5 \sim 80$$

$$1/81 = 0.01234567$$

The Mass crests over at the quanta. That is what humans perceive. The world outside the human mind is continuous.

From Electromagnetism,

$$Jr^2 = \cos \gamma$$

$$\omega = \iint S \cos \gamma / r^2 \partial a = \iint S J \partial a$$

$$J^2 = \cos \gamma * 1/r^2$$

$$J^2 * r^2 / 2 = \cos \gamma$$

The Orb is 44 cm diameter. So

$$[(4/3)^2 * (44/2)^2] / 2 = \cos \gamma$$

$$\gamma = \pi/2$$

$$23.704/2 = \cos \gamma$$

$$118.52 = \cos \gamma$$

$$\gamma = 83.2^\circ = 1.452 \text{ rads}$$

$$A_n/A = \cos \theta$$

$$\langle E, t \rangle = |A_n| I$$

$$I = \text{current} = 1.334$$

$$s = |A_n| (4/3)$$

$$A_n = 1$$

$$-\sin \theta = -a = A_n = 1 / \cos \theta$$

$$\sin \theta (\cos \theta) = -1$$

$$\sin \theta = -(1/\cos \theta)$$

$$-\cos \theta = -1/2x^2$$

$$-\cos = 1/2x^2$$

$$-2\cos^3(t) = 1$$

$$\cos^3(t) = 1/2$$

$$\cos t = 0.7937$$

$$t = 37.467 \text{ degrees} = 6539 \text{ rads} = \pi / \text{Ln } 1.618 = G$$

$$t = G$$

$$\text{Now } s = |E| |t| \cos \theta$$

$$\langle E, t \rangle = s = \cos \theta \text{ M} = \langle E, t \rangle$$

$$A_n/A = \langle E, t \rangle = M$$

$$A_n / A = \cos \theta \text{ A}_n = A \cos \gamma \text{ n}$$

$$A_n = A \langle E, t \rangle$$

$$1/A_n = \cos \theta$$

$$1/A_n = 4/3$$

$$A = 3/4 \text{ Spherical}$$

$$z = r \cos \theta$$

$$z = \cos \theta = r A_n$$

$$r = A_n$$

Everything in existence is relative to the number 1, even scalars.

## Hilbert Space

The Unique vector that is the convergence of orthogonal subspaces is given by:

$$f(x) = \sum f(x) \text{ k} = 1 \text{ to } \infty$$

$$x = f = x \wedge (\infty + 1) / (\infty + 1) \text{ x} \text{ x}^{\infty/\infty} = 0.99999 \sim 1$$

The universe converges upon 1, where the fraction meets the multiple.

## [INTRODUCTION TO SPECTRAL THEORY IN HILBERT SPACE, G. HELMBERG]

The Dot Product or Inner Product converges to the Energy Level in the universe.

$$\langle f, g \rangle = \int f(x) g(x) dx$$

$$= x^* \int (1/(x-1)) dx$$

$$= -2x / (x-1)^2$$

If we assume the dot Product and Cross product are equal, then  $\sin x = \cos x = 1/\sqrt{2}$

The Quadratic, results,

$$x^2 - 0.8284x - 1 = 0$$

Solving the quadratic, know  $\sqrt{-1} = -0.618$ ,

There is only one root, and it is 0.1483. Conjugate,  $E = 0.852$

### Contraction

[INTRODUCTION TO HILBERT SPACE, N YOUNG]

$$6\pi^{1/11} = G$$

$$G^* \sin 60^\circ = 1/\sqrt{3}$$

So a side of the equilateral triangle is  $1/\sin 60^\circ = 1/F = E$

Energized is minimized when the operator is  $\pi$

Contraction is shrink to an equilateral triangle. From one point to the opposite, is a  $30^\circ - 60^\circ - 90^\circ$  triangle.

So, the hypotenuse is  $2\pi/\sqrt{3} = \sin 60^\circ * \pi = 1/e$  (recall the energy for harmonic motion and the golden mean).

So energy is minimized.

Since  $e^{-t}$  is robust, its derivative is itself, and  $E = e^t = 1$ , the Conservation of Energy can be expressed as:

$$e^{-t} = 1$$

$$\ln e^{-t} = \ln 1$$

$$-t_j = 0$$

$$\text{So } t_0 - (-t_j) = 0$$

$$t_0 - t_j = 1$$

$$t_0 - 0 = 1$$

$$t_0 = 1$$

### Strum-Liouville

Strum-Liouville:

$$f(0) = 0 = f(\pi)$$

$$2t - 1 = f'$$

$$2(3.14) - 1 = 0.528$$

$$K.E. = 1/2 Mv^2$$

$$0.528 = 1/2 (4.482)v^2$$

$$v^2 = 23.58$$

$$\ln 23.58 = \pi$$

$$\ln v^2 = \pi$$

$$2v = \pi$$

$$v = \pi/2$$

$$P = Mv = 4.4852(\pi/2) = 1/0.858 = 1/t$$

So why does the frequency =  $1/\pi$ ?

$$1/\text{freq} = \text{Wavelength}$$

$$1/(1/\pi) \text{ sec} = \lambda$$

$$1/s = c = d/t$$

$$d = 1$$

$$c = 1/1 = 1$$

$$d = 1 = c$$

$$d = c$$

$$s = d/t$$

$$s = s'$$

$$y = y'$$

$$t = 1 = d$$

$$t = s$$

$$t^2 - t - 1 = 1 \quad t^2 - t = 2$$

Derivative

$$2t - 1 = 0$$

$$t = 1/2$$

$$\sin \theta = \cos \theta = 1$$

$$\theta = 0 \text{ or } \pi = t$$

$$t = 0 \text{ is trival, so } t = \pi$$

Plot  $\ln t$  and  $e^t$  and we get our usual  $R_m$ .

$$\delta^2 f / \delta t^2 + p(x) \delta y / \delta x + G(x) y = R(x)$$

Integrate

$$x^3/3 - x^2/2 - x = C$$

$$3/2 * (x^2 - 2)/2 * x - 1 = 0$$

$$x = 2.5 \sim T \text{ Period}$$

$$t = 1/2.5 = 0.4 = 1 \text{ rad}$$

Now inputting  $\sqrt{2}/\sqrt{3} = 0.816$  (618 in reverse)

$$\text{Curvature} = 1/\rho = s \quad \rho = \delta s / \delta \theta \quad 0.1273 = \delta s / \sqrt{\pi}$$

$$\delta s = 0.2256$$

$$1/\delta s = 4.4320 \sim A$$

$$A = pc / E/s^2$$

$$4.4320 = 2.667(4.3079) / (1/0.4233) / s^2$$

$$s = 0.9544$$

$$1/\rho = 0.9544$$

$$\rho = 1.0478 \text{ rads} = 60.0^\circ$$

$$(\tau)^2 = 60 \text{ degrees} = 1/6$$

If a particle moves at constant speed, its acceleration is normal to its velocity.

In the s-t plane, normal is the acceleration, or  $F = \sin \theta$

$$(\tau)^2 = 1/6$$

$$f(\tau^2) = 1/6$$

$$\tau = 6.3 \text{ EARTHQUAKE MAGNITUDE}$$

Now inputting  $\sqrt{2}/\sqrt{3} = 0.816$  (618 in reverse)

$$3/2x^2 - 2x - 2 = 1/e$$

$$R(x) = 1/e$$

This is where the Harmonic Equation meets the Golden Mean. It is our Universe!

### Four Fundamental Forces

So there are 4 fundamental forces in our material universe, namely, Strong Nuclear; Weak Nuclear; Electromagnetic; and Gravity There are all related algebraically as follows.

From above:

$$F = \sin 1 = 1 - 1/\beta$$

$$G(2A) = F + \rho/\delta\rho * \delta\rho$$

$$G(2A) = F + 1/\beta$$

$$= F + \rho * \delta\rho/\delta\rho$$

$$F = G(2A) - 1/\beta$$

$$\delta F = 0 \sin \rho/\delta\rho (\text{not } =) 0 = 1$$

$$0 = dF * \rho/\delta\rho$$

$$(1) = 1 + \delta F * \rho/\delta\rho$$

$$2GA = F + \delta\rho/\delta\rho * \rho$$

$$\delta F = \rho/\delta\rho = 0$$

$$F' = 0$$

$$\text{So } F = G(2A) - 1/\beta$$

$$F = 2GA - Fd$$

$$F = 1 - Fd$$

$$F + fd = 1$$

$$F(1+d) = 1'$$

$$F = 1/(1+d)$$

$$F' = [1+d]^{-1}'$$

$$F' = (1+d)^0/0$$

$$F' = 0 = 1/0$$

$$F' = 0$$

$$1/F' = 0$$

$$\sqrt{(-1)}/\sqrt{0} = \text{sqrt}(-1) = 0.618, 1.618$$

$$\text{sqrt}(1/0) = \text{sqrt}(-1)$$

$$1/0 = -1$$

$$F' + \rho/\delta\rho = 0$$

$$1/0 + 1 = -0'$$

$$\sqrt{(0)} = 1.618 \ 0 = (1.618)^2 = 2.6179 = 2.618 = 1 + 1.618 = t + t = 2t$$

So, the Universe is a 4 th Order tensor with variables: F (or acceleration and its derivative momentum); t,s,E

$$a = v = s$$

$$s = Ae^{-st} \dots\dots\dots \text{Temperature} = \text{mass} = \text{energy}$$

Clairnaut harmonic bear

$$\delta^2 E/\delta t^2 - E = 0$$

$$G - E = 0$$

$$G = \int E \dots\dots\dots \text{GRAVITY}$$

$$F = \sin \theta \dots\dots\dots \text{STRONG NUCLEAR}$$

$$\tau = c + \sigma * \tan(45^\circ + \phi/2)$$

$$c = -0, \phi = 30^\circ, \theta = 45^\circ + 30^\circ/2 = 60^\circ$$

$$\tau = \sigma * \sqrt{3} \dots\dots\dots \text{ENERGY}$$

$$P/e = -F/1.602 = 2.667/1.602 = 1/6 = 60^\circ \dots\dots\dots \text{Electromagnetic}$$

In conclusion,

$$E = M \ M = F \ E = G \ F = \sin \theta$$

$$F = G(2A) - 1/\beta$$

and The Universal Equation is:  $s = E \ x \ t \ @ \ F = \sin 60^\circ \ s = |E||t|\sin \theta$   
 $s = |E||t|F$

Dampened Cosine In The Harmonic Beat:

$$Y = e^{-st} \cos \theta$$

$$(1)(s) = -s * \cos \theta * \sin \theta$$

$$\sin \theta * \cos \theta = 1$$

Taking the derivative:

$$-\cos \theta = [(\cos \theta)^{-1}]'$$

$$\cos \theta = 1$$

$$\theta = 0$$

$$\sqrt{\theta} = t$$

$$t = \sqrt{0} = 1.618$$

$$1.618/\pi = 1/196 \ \infty$$

$$2.71828/\pi = 0.865 = E$$

### Fluid Mechanics

[Vectors, Tensors, and the Basic Equations of Fluid Mechanics, R Aris]

$$1/\rho = \tau^2$$

$$\text{Curvature} = 1/\rho = s \ \rho = \delta s/\delta \theta \ 0.1273 = \delta s/\sqrt{\pi}$$

$$\delta s = 0.2256$$

$$1/\delta s = 4.4320 \sim A$$

$$A = \rho c/ E/s^2$$

$$4.4320 = 2.667(4.3079)/(1/0.4233)/s^2$$

$$s = 0.9544$$

$$1/\rho=0.9544$$

$$\rho=1.0478\text{rads}=60.0^\circ$$

$$\tau^2=60^\circ=1/6$$

If a particle moves at constant speed, its acceleration is normal to its velocity.

In the s-t plane, normal is the acceleration, or  $F=\sin \theta$

$$\tau^2=1/6$$

Integral ( $\tau^2$ )=1/6

$\tau=6.3$  EARTHQUAKE MAGNITUDE

$$\beta=\text{Tan } u \times v$$

$$\beta=|\tau||v|\sin \theta$$

$$\theta=60^\circ$$

$$v=0.2592\sim\text{porosity } e$$

$$\beta^*\beta=1$$

$$|\beta||\beta|\cos \theta=1$$

$$\beta=\sqrt{2}$$

$$v'=Mv(\sqrt{2}) - 1/0,1273)(6.3)=4.406\sim A$$

$$\delta s/\delta t=0.0027$$

$$0.0227/0.8415=0.0027=v=\text{POISSONS RATIO}$$

$$v=\rho * \tau$$

$$0.02698=0.1273\tau$$

$$1/\tau=0.4718$$

$$\text{Ln } \tau=\text{Ln } 6.3)=1.8405$$

$$1/\text{Ln } 6.3)=0.543$$

$$0.543/0.4718=115.16$$

$$0.868$$

$$Z=\sin \theta \sin \theta=-1$$

$$z=0.8415$$

$$z=r(\cos \theta+i \sin \theta) 0.8415=r(\cos 1+i \sin 1) 1=r(1+i) 1/r=1+i$$

$$Z=r e^{(-i \theta)} 1.618=r(0.618)(e^{(-i \theta)})$$

$$2.6181=r^{(-i \theta)}$$

$$\text{Ln } (2.618)=0.9825=\text{Ln } (0.618)e^{(-i \theta)}$$

$$0.9825=\text{Ln } (0.618)/\text{Ln } e^{(-i \theta)}$$

$$-i \theta=\text{Ln } 0.618/0.9825$$

$$i \theta=\text{Ln } 0.5000 i 1.618 \theta=0.5$$

$$\theta=0.309$$

$$\theta=1.77^\circ=\sqrt{\pi}=t$$

$$M=f=2=\delta M/\delta t$$

$$\text{P.E.}=Mgh 43.98=(2+4.486)(0.1585)(h) h=0.4233=cuz=R_m$$

CUSACK'S UNIVERSAL POTENTIAL ENERGY EQUATION

$$\text{P.E.}=[M+\delta M/\delta t][u.g.)(R_m)$$

$$\text{K.E.}=1/2 Mv^2$$

$$=1/2 (2+\delta M/\delta t)v^2$$

$$=(2+4.486)(0.8415)^2=2.2964$$

$$\text{Ln K.E.}=3.1339\sim\pi$$

$$\tan \text{P.E.} / \text{K.E.}=1397^\circ$$

$$E=0.8603$$

$$\tan \varphi=\cot \varphi$$

$$\varphi=1.599=1/6$$

$$\varphi 0.625 \text{ rads}$$

$$\tan (45^\circ+\varphi/2)=88.4=h$$

$$45^\circ+\varphi/2=35.82^\circ$$

$$\varphi=16164\sim 1.618=t \text{ on the Energy Golden Mean Parabola}$$

## Fluid Dynamics

### [J. Bear Fluid Dynamics in porous Media]

$$\beta=1/\rho * \delta \rho/\delta p$$

$$=s * \delta \rho/\delta p$$

$$=4/3 * (0.1273)/26.667)$$

$$=0.0636$$

$$=\text{Earthquake Magnitude}$$

$$1/\beta=15.72$$

$$1-1/\beta=0.8428=\sin 1$$

$$F=\sin 1=1-1/\beta$$

And,

Permeability

$$1-Kz/b=\sin 1$$

$$kz/b=\text{Moment}$$

$$kz/b=Fd$$

$$d=z$$

$$k/b=F$$

$$15.85=26.667 (b)=k$$

$$k=0.5944$$

$$1/k=1682$$

$$1/k=1.7$$

$$s=k * \rho=1.7(0.1273)=1333=s$$

$$s=k 1/s)$$

$$s^2=k$$

$$k=1.77=\sqrt{\pi}$$

$$s=\sqrt{[\sqrt{\pi}]}$$

$$t=\pi$$

$t = \sqrt{\theta}$   
 $\sqrt{\theta} = \pi \sqrt{[\sqrt{\pi}]} = \sqrt{\pi}$   
 $s = \sqrt{\sqrt{\pi}}$   
 $s^4 = \pi$   
 $s^4 = (1+e) = 1.263$   
 $T = kb = (0.5944)(0.0594) = 0.0353$   
 $\tau \delta\tau/\delta t = kT/s$   
 $\sqrt{3} * \delta\tau/\delta t = (0.5944)(0.0353)/(1.263) \delta\tau = \sqrt{3} = 1/6$   
 $\delta\tau/\delta t = \delta E/\delta t = \int G = 1/6/\sqrt{3} = 0.0962$   
 $\int G = \int \delta\tau/\delta t = \tau$   
 $G^2/2 = \tau = 0.0962$   
 $G = 0.4386 = P.E.$   
 $G = 43.86(2/3) = 15198$   
 $K.E. = 8480$   
 $K.E. = 1/2 Mv^2$   
 $M = 2 = F$   
 $M_0 = F * d = 0.1585 = \sin \theta * s$   
 $0.1585/(4/3) = \sin \theta$   
 $\sin \theta = 118.9$  (118 Chemical Elements in the Periodic Table)  
 $4.486 / (118.9 * 938) = 402.11 = Re$   
 $Re / \sin \theta = Mp + / M$   $Re = Inertia f / Visc$   $F = \sin (0.1696) / \sin (0.2699) = 6.383 \sim h = 2/\pi$   $h = (\delta M/\delta t) / t$   $\delta M/\delta t = ht$   
 $2 = 6.36 * t$   
 $t = \pi$   
 This is the solution to Mass degeneration in QM.  
 $C = A' = 2\pi R$   
 $M_0 = F * d = F * R = \sin \theta * \delta R/\delta t = \delta M_0/\delta t$   
 $I = \delta M_0/\delta t = \sin \theta * \delta R/\delta t = \delta R/\delta t$   
 $t \delta t = \delta R$   
 $\int t dt = \int \delta R dt$   $t^2/2 = R$   
 $t^2/2 = R$   $t = 2$   
 $t^2 - t - 1 = E \delta E/\delta t = 2t - 1 = G$   
 $2(2) - 1 = 3 = c$   
 $1/c = Wa. Eq.$   
 $\delta M/\delta t = G = \delta^2 E/\delta t^2$   
 So Gravitational Constant is the rate of Mass degradation (and formation)  
 $M = 1/81 \sim 0.125$   
 $\int \delta M/\delta t C_0 = \int M$   
 $M * 1.602 = M^2/2$   
 $C = 251 = T$  Period

So, what governs  $\delta M/\delta t = 0.197$ ?  
 $E = Mc^2 = F$   
 $F = \sin \theta = Mc^2$   
 $\sin t = 197 (2.9979)^2$   
 $= 1.77 = \sqrt{\pi} = \sqrt{t}$   
 $t = 1/T$   
 $1 = 1/251 = 0.4$   
 $\sqrt{4} = 2 = R$   
 $\delta M/\delta t = R$   
 $A' = 2\pi R = 2\pi(2) = 4\pi$   
 So the rate of change =  $1/4\pi = 0.796 \sim 0.8$   
 Or  
 $81 = c^4$   
 $\delta c^4/\delta t^4 = \delta^3 v/\delta t^3 = \delta^2 s/\delta t = C = T$  Period  
 So, Mass degenrates at the Period  $T = 251/\text{sec}$   
 $M = \sin t - e^{(1696 * R^2)}$   
 $\delta M/\delta t = \cos t - e^{(0.1696 * 4)}$   
 $= 0.6609 - 0.507$   
 $= 0.4283 \sim cuz$   
 $0.4283 * 0.1978 = 0.847$   
 $1/0.847 = 118$  Elements in the Periodic Table.  
 There are 7 Periods in the Periodic table of the Elements.  
 $Wa. Eq. = 1.618^{(7 * R^2)}$   
 $28 \ln 1.618 = 1/23 = 4.3482$   
 $M/c = 28/2.974 = 941.5 = Mp +$   
 $p = hk = hF = 6.36 * 2.667 = 0.1696$   
 $4.3482/c = 1.48 \sim 1.5$   
 $e^{-1.5} = M$   
 $E = Mc^2$   $E = M/c * c^3$   
 $E/c^3 = e^{pR}/c^3 = e^{(1.696)(2)} = 1/81$   
 $1/81 = 0.012345679$   
 This then is how Mass and the Period table and the Wave Equation are interrelated. It also shows the Mass Gap.  
**Quantum Chemistry**  
 $p = hk = hF = 6.36(8/3) = 1696$   
 $F \cdot \int \psi e^{(\pi/2)} = e^{(pR^2)}$   
**CUSACK'S QUANTUM CHEMISTRY FORMULA**  
 $M = \sin (1/E) - e^{(pR^2)}$   
 $\psi = [Gt^3 - 1/R * t^2 - t] e^{(t/2)}$   
 Let  $t = c = 3$

$$\begin{aligned} \psi &= [2/3(3^3) - 1/2(3^2) - 3](e^{-3/2}) \\ &= 1/c \\ 1/c &= E \\ E &= 1/t \end{aligned}$$

**Wave equation**

$$\begin{aligned} U &= iV = 1 + (0.618 * 1) = 1.618 \\ 1.618 &= 1/\sqrt{2\pi * e^k} \\ k &= 405 \\ k &= 1.4001 \\ 0.86 &\text{ or } 59.3 \text{ degrees} \sim 60 \text{ degrees} \end{aligned}$$

Is matter a wave or particle? I'd say a wave creates a particle. A wave is a form of energy. That energy is stored in the mass. Thus  $E=Mc^2$ . The sine curve is the Force which equals Energy that is put into Mass formation. The Mass is a temporary store for P.E. Einstein's Equation should be,  $PE=Mc^2$  So,  $F=E$  as we have already calculated.

$$\begin{aligned} t^2 - t - 1 &= E = \sin t = 1/\sqrt{2} \\ t^2 - t &= 1/\sqrt{2} + 1 \\ t(t-1) &= 1.707 \\ t &= 1.707 = 1 + 1/\sqrt{2} \text{ OR, } t = 2.707 \sim e^1 \\ t &= 1 + \sin 45 = 1 - \sin t = \text{Moment OR } t = E \\ E &= 1/t \end{aligned}$$

[QUANTUM THEORY DAVID BOHM]

**Quantum theory**

The Fourier Integral is the dampened cosine curve already introduced.

The pulse of the universe is like a heart beat, one dampened cosine curve after another.

$$\begin{aligned} Y &= e^{-t} \cos \theta \\ Y' &= e^{-t} \sin \theta \\ y &= y' \\ \cos \theta &= \sin \theta \end{aligned}$$

$$\begin{aligned} \text{Wave Equation} &= 1/\sqrt{2} / \sqrt{\pi} * \text{Integral } e^k \partial k \\ &= 1/\sqrt{\pi} * \cos 45^\circ e^k \\ &= 1/\sqrt{\pi} * Y \\ 1/\sqrt{\pi} * \cos 45^\circ &= 0.3991 \sim 4 \\ 4 &= \text{SUM } (E+t) \text{ (Vector Space)} \end{aligned}$$

THIS UNITES COSMOLOGY WITH QUANTUM MECHANICS.

So we've unified Cosmology with Quantum Mechanics and Electromagnetism. That is the Grand Unified Theory.

**Quantum mechanics**

**INTRODUCTION TO QUANTUM MECHANICS, D J GRIFFITHS]**

$$\psi = cn \int (t^2 - t - 1) * e^{t/2}$$

**CUSACK'S MODIFIED SCHRODINGER EQUATION**

$$\psi = [Gt^3 - 1/R * t^2 - t] e^{(\pi/2)}$$

OR,

$$E = \int E e^{t/2} \text{ where } t = \pi$$

deBroglie Wavelength

$$\begin{aligned} \lambda &= h / \sqrt{[3MkT]} \\ &= h / \sqrt{[3 * 4.482 * 8/3 * 0.2506]} \\ &= h / c^2 \end{aligned}$$

$$= 1/\sqrt{2} = \sin 45^\circ = \cos 45^\circ \text{ (} 45^\circ = 1 \text{ qusackian)}$$

If we have 5 singular points for a Linear Second Order Differential Equation, we have the famous distance equation:

$$d = v_i t + 1/2 at^2$$

Integrate this twice, we get 6 variables (s, G, d, v, a, M), From the Clairnaut Second ODE, we get the Operator (frequency), and the Energy, All we need is  $R_m = cuz$  and  $N = 11$

I've shown already that sin must equal cos for matter to appear. Now I tell you that the Fourier Integral converges on  $G = 2/3$  when  $\sin = \cos$  or  $y = y' x = 0.8415 = \sin 1 L = 87 \& 8.7 \& 0.87 n = 1 a_0 = 0$

$$a_0/2 + \sum [a * \cos(n\pi x/L) + b \sin(n\pi x/L_0)]$$

$$a = 1/L \int f(x) \cos(n\pi x/L) dx$$

$$= -\sin(n\pi x/L)$$

$$b = 1/L \int f(x) \sin(n\pi x/L)$$

$$= \cos(n\pi)/L$$

Substituting,

$$0/2 + \int (-\cos^2(n\pi x/L) + \sin^2(n\pi x/L))$$

$$2/3 \sin^3(n\pi x/L) + 2/3 \cos^3(n\pi x/L) = -2/3 (\sin^3((1)(\pi)(0.8415/87)) + 2/3 \cos^3((1)\pi * 0.8415/87))$$

$$= 0 + 2/3 (1) = 2/3 = G$$

**Cusack's Fourier Integral Formula**

$F = G c^* GE$   $F = G(c+E)$ . The solution to the Fourier Integral is necessary ( $y = y' = e^t$ ) and sufficient.

CUSACK'S MASS FORMULA  $M = 2\pi R / cuz / C_0$  One only needs the Fourier Integral, the Orthogonal Matrix with Operator  $\Omega^{-1} = 1/\pi$ , and Cusack's Mass formula to solve the entire Universal Problem.

**CUSACK'S FORCE EQUATION**

$$F - G = \sin 60^\circ$$

$$A' = \text{Circ} = 2\pi R$$

$$R = 2 = \delta M / \delta t = E = G$$

$$2\pi * 2 = 4\pi$$

$$4\pi / cuz = 29.6867$$

$$29.68 / C_0 = 29.6867 / 1.602 = 1853 \sim n/p +$$

$$1853 * 7 = 129.71 = 1/0.771$$

$$0.771 * 24 * 3600 = 6.67 = G$$



$E = \Omega - \Omega_0 = 2\pi/l$   
 $= 2\pi (0.75) = 8/3 * \pi = F * t = I$   
 $\int qa/dE = (qa)^2/2 * dt$   
 $= 7^2/2 * dt = 992$   
 $dt = 40489 = 23.1985 \text{ rads}$   
 $\ln 23.1985 = 3.1441 \sim \pi$   
 Bell Curve:  
 $\psi = 1/\sqrt{2\pi} * \int e^{-t}$   
 Let  $t = \pi$   
 $1/Te^{-\pi} * e^{\pi} = tE = 172 \sim \sqrt{3} = E$   
 $E = Mt \quad tE = Mt^2$   
 $E = \sqrt{3}$   
 $t = 1.618 = \psi$   
 No spooky action at a distance.  
 So the process that governs QM is not subject to a hidden variable.  
 It is  $1/\sqrt{81} = 0.012345679$   
 $\Delta E = hv = 6.36 (1/\pi) = 202.45$   
 $\Sigma qa / dE = qa)^2 * dE$   
 $= 7^2 * 202 = 992$   
 $1/992 = 1.0081 = H +$   
 God doesn't roll the dice.  
 $d/dx \csc = \csc 2.9979 + \cot 2.9979 = 19.126 - 19.100 = 365.3 = \text{Earth Year}$   
 $2.9979 * 365 = 1 \text{ LY}$   
 And,  
 [David Bohm, Dover]  
 $E = 1/(8\pi) * \int (\text{Electric field}^2 + \text{Magnetic Field}) dr$   
 $= 19905 / (8\pi) * R$   
 $= 1584 \sim 1 - \sin 1 = \text{Moment} = F * d = \text{Work}$   
 So the Universe of volume 19905 is an Electric and Magnetic field.  
**THE Cusack Universal Equation is:**  
 $\delta^2 E / \delta t^2 - E = \ln t$   
 or,  
 $GE^3 - \ln t = s$   
 $0.666 * E^3 - \ln 1 = ||E|| ||t|| \cos 60^\circ$   
 $E = 1.2533$   
 $E = -1.2533 = E_{\min} = t^2 - t - 1 \text{ (GOLDEN MEAN)}$   
 You might do a sensitivity analysis on this circuit?  
 $x^2 - y^2 = \pi$   
 $2x^2 = \pi$   
 $x = \sqrt{\pi}/\sqrt{2}$

$x^2 - x - 1 = 1 - 0.625 = 1/\pi = 31.8 \text{ Hz (Human Perception)}$   
 The capacitor should be  $C = \pi$   
 $V = iR G ||E|| ||t|| \cos 60^\circ = [r + 1/c + L]i$   
 $R = \text{slope } m = 1/\csc 1/C = \pi L = 2$   
**Cusack Analogue Circuit Equation**  
 $G * 0.8415 * \sqrt{3}/2 = [\pi - e + \pi + 0.8415(\sqrt{3}/(2c^2))]i$   
 $G * \text{unit eigenvector} = 1 \text{ cycle } -e + \sin 1 \text{ unit eigenvector} / [2 \text{ unit eigenvalue}^2]$   
 $G * \text{unit eigenvector} = 3\pi - 2e + \text{eigen vector} / \text{eigen Value}^2$   
 $G * \text{unit eigenvector} = \text{eigen Value } \pi + \delta M / \delta t * e + \text{eigenvector} / \text{eigen value}^2$   
 The universe is where the FUNCTION  $x^2 - x - 1 = 0$  meets the RELATION  $x^2 - y^2 = 1$   
 The FUNCTION is the Derivative whereas the RELATION is the Integral. So  $y = y' = \text{Integral } y = e^x$

Since  $0.618 = \sqrt{1}$ , and this is imaginary, it follows that  $1/0.618 = 1.618$  is imaginary.  $1.618 * 0.618 = 1$  is imaginary. The energy that makes up the universe is imaginary. We are all but images in God's mind.

**Conclusion**

We see that the Cusack Universal Equation and the Cusack Force Equation unites the four fundamental forces in our universe -the Holy Grail of Physics. There is no spooky action at a distance and Quantum Mechanics and Cosmology are finally united.

**References**

1. Aris R (1962) vectors, tensors, and the basic equations of fluid mechanics. Dover, New York.
2. Bear J (1972) Fluid dynamics in porous media. Dover, New York.
3. Ohm D (1951) Quantum theory. Dover, New York.
4. Cusack P (2016) Riemann Hypothesis Clay Institute Millennium Problem Solution. J Appl Computat Math 5:317. doi:10.4172/2168-9679.1000317.
5. Griffiths DJ (2014) Introduction to quantum mechanics. Pearson Essex, England.
6. Helmbert G (1969) Introduction to spectral theory in hilbert space. Dover, New York.
7. Ronjansky V (1971) Electromagnetic fields and waves. Dover, New York.
8. Young N (1988) Introduction to hilbert space. Cambridge University Press.

Citation: Cusack P (2017) Convergence and the Grand Unified Theory. J Phys Math 8: 211. doi: 10.4172/2090-0902.1000211