

This Theory Is Zero

I know you desire a first principles, simplest assumption, origin of physics and mathematics.

You want to know it all!

Well, you can, just:

"postulate 0".

The Concept

The concept is simple because it is "simplicity" itself:

"Ultimate Occam's razor postulate(0) implies mathematics&Newpde"

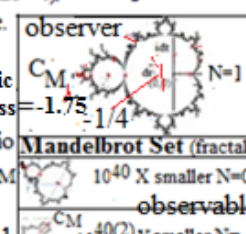
given "0 is the simplest idea imaginable" (Hold that thought: 0, "I drew a blank".)

So this is "first principles", thus we have actually figured it out! We completely understand!!!

It works(fig1) because it is THE first principle! And it makes sense because all QM physicists know about **Lorentz covariant**(9) Dirac equation *real* eigenvalues and all mathematicians know that the limit of a Cauchy sequence of rational numbers is a Cauchy *real* number. So by merely **postulating**o
"z=zz+ C implies *real*#0"

(C constant so $\delta C=0$ and $z=zz+C$ eq1 gets us the multiplicative properties of **0**. See M3) there then must be a rational Cauchy *sequence* with limit 0 that then doubles as an *iteration* of eq1 in $\delta C=0$ that thereby gives the (fractal) Mandelbrot set. Also plugging eq1 directly into $\delta C=0$ gives the Dirac eq. and so fractal (scales $10^{40N} \times C_{M,N=0}$, fig1) *real* eigenvalues of a **generally covariant** generalization of the Dirac equation(Newpde) that does not require gauges, clearly a major discovery as shown in fig1.

Newpde $\equiv \gamma^\mu (\sqrt{\kappa_{\mu\nu}}) \partial \psi / \partial x_\mu = (\omega/c) \psi$ for v, e ; $\kappa_{00} = e^{i(2\Delta\varepsilon/(1-2\varepsilon))} - r_H/r$, $\kappa_{rr} = 1/(1+2\Delta\varepsilon - r_H/r)$; $r_H = C_M/\xi = e^2 \times 10^{40N}/m$ (fractal jumps $N = -1, 0, 1, \dots$) $\Delta\varepsilon \equiv m_e$, $\varepsilon = \mu$ are zero if no object B (appendix B, C, fig2)

Spherical Harmonic Solutions to Newpde: $2P_{3/2}, 1S_{1/2}, 2S_{1/2}$ at $r=r_H$ since Stable $2P_{3/2}$ at $r=r_H$	
$N=0$ at $r=r_H$ $2P_{3/2}$ $3e$ baryons (QCD not required) Hund's rule $1S_{1/2}, 2S_{1/2}$ leptons 4 SM Bosons from 4 axis extreme rotations of e, ν . $N=-1$ (i.e., $e^2 \times 10^{-40} \equiv C_M$). κ_{ij} is then by inspection the Schwarzschild metric g_{ij} (For $N=-1, \Delta\varepsilon \ll 1$). So we just derived General Relativity (GR) and the gravity constant G from Quantum Mechanics (QM) in one line. $N=1$ Newpde zitterwegung expansion stage is the cosmological expansion. $N=0$ Newpde spherical harmonic $2P_{3/2}$ at $r=r_H$ with B flux quantization gives relativistic $\pm e$ ($\tau=917$) extremely narrowed E field lines at center explaining strong force & big Baryon Mass = -1.75 - 1/4 $N=0$ The third order Taylor expansion (terms) in $\sqrt{\kappa_{ij}}$ gives the anomalous gyromagnetic ratio and Lamb shift <i>without</i> the renormalization and infinities. So κ_{ij} provides the general covariance of the Newpde. So we got a lot of physics here by mere inspection of this Newpde with no gauges!	 <p style="font-size: small;">observer C_M $N=1$ Mandelbrot Set (fractal) 10^{40} X smaller $N=0$ observable C_M $10^{40(2)}$ X smaller $N=-1$</p>
fig1	

Conclusion: So by merely *postulating 0*, out pops the whole universe, no more, no less, BOOM! easily the most important discovery ever made or that will ever be made again.

Concept: Ultimate Occam's Razor(postulate0) → math&Newpde

Origin of mathematics:

List#s-define symbols and (single simple axiom) postulate0: $z=zz+C$ implies real0

eq1 (C constant so $\delta C=0$)

Plug eq1 into $\delta C=0$
Get Dirac equation.

Implies rational Cauchy sequence

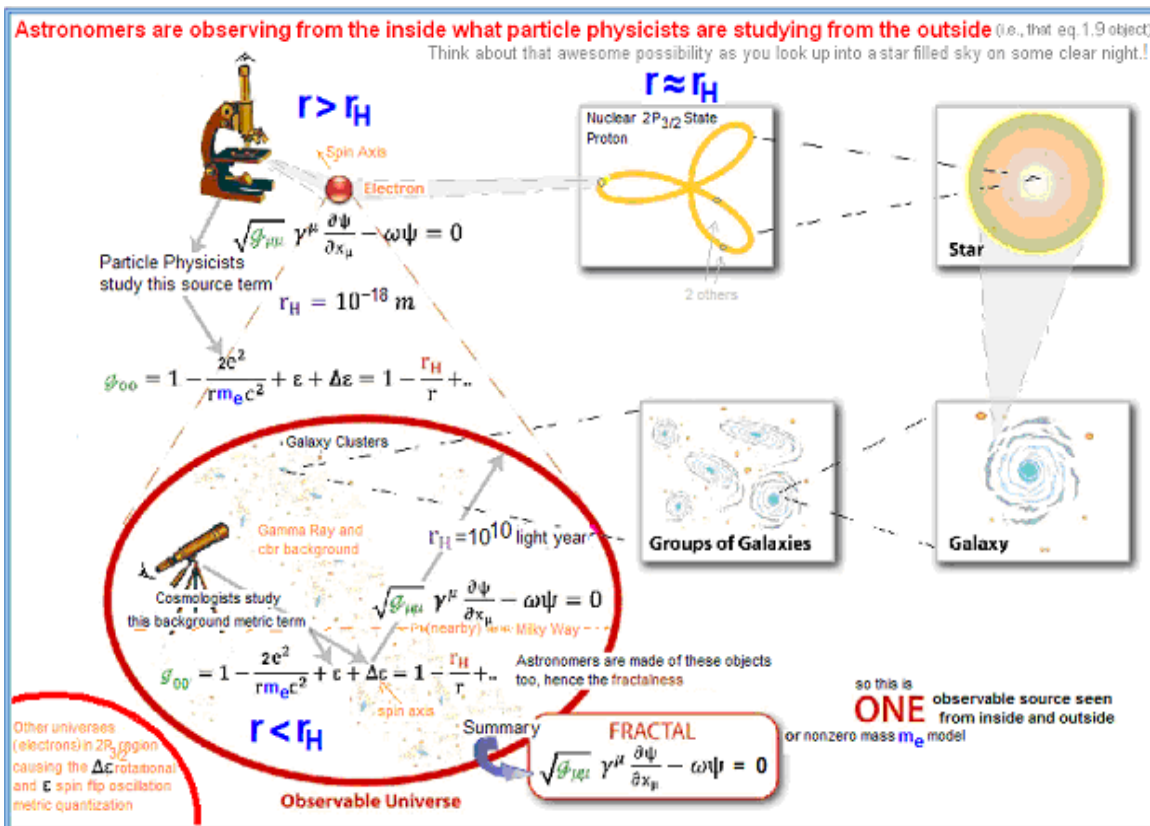
Doubles as eq.1 iteration plugged in $\delta C=0$
Gets Mandelbrot set

Newpde

$$\equiv \gamma^\mu (\sqrt{\kappa_{\mu\nu}}) \partial \psi / \partial x_\mu = (\omega/c) \psi$$

Origin of physics:

The Mandelbrot set fractal scale jumps ($10^{40N} X C_M$, N integer in Newpde) of fig1 implies that by increasing the scale by $10^{40} X$ we are right back to where we started!



Object B

Object A

Nearby object C

fig2

This Theory Is Zero

Abstract: All QM physicists know about *Lorentz covariant*(9) Dirac equation *real* eigenvalues. All mathematicians know that the limit of a Cauchy sequence of rational numbers is a Cauchy *real* number. So here we simply **postulate0** “ $z=zz+C$ eq1 implies *real#0*” (C constant so $\delta C=0$, $z=zz$ needed for the multiplicative properties* of 0.) implying a rational Cauchy *sequence* with limit 0 thereby doubling as an *iteration* of eq1 in $\delta C=0$ that gives the (fractal)Mandelbrot set. Also plugging eq1 directly into $\delta C=0$ gives the Dirac eq. and so fractal (scales $10^{40N} X C M_{N=0}$, fig1) *real* eigenvalues of a *generally* covariant generalization of the Dirac equation(Newpde) that does not require gauges, clearly a major discovery as shown in fig1.

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* Plugging $1 \equiv 1+0$ consecutively into $1=1X1$ thereby *defines* ring relation $1X0=0$ and $0X0=0$. So “list $1=1X1$ -**define** symbol $z=zz$ ” gives the ring *multiplicative properties of 0* such as $1X0=0$ so with $+C$ needed for the *addition* of constants (so $\delta C=0$) in the ring-field such as that $1=1+0$. The rest of “list number-**define** symbol” replacement of ring-field axioms with single simple axiom postulate0 is in appendix M3.

Summary: So **postulate0** (ie “ $z=zz+C$ eq1 implies *real#0*”) also derives math including δC . So can plug $z=1+\delta z$ into eq1 and get $\delta z + \delta z \delta z = C$ (3) so that $\frac{-1 \pm \sqrt{1^2 + 4C}}{2} = \delta z \equiv dr + i dt$ (4) for $C < -1/4$. Thus C is complex. But the definition of *real0* $\equiv z_0$ implies that Cauchy sequence “iteration” so requires

I **Plugging the eq1** rel *iteration* ($z_{N+1} - z_N z_N = C$) into $\delta C=0$ implying $\delta C = \delta(z_{N+1} - z_N z_N) = \delta(\infty - \infty) \neq 0$ for some C. The Cs that result *instead* in finite z_{∞} s (so $\delta C=0$) define the **Mandelbrot set** in fig1 whose lemniscate continuity (11) along $dr \approx dR$ is required by the derivative in $\delta C \equiv (\partial C / \partial R) dR = 0 = dC = dC_M 10^{xN}$ with its max extremum scale jump xN at $C_M = -1.75$ where the largest $x \approx 40$, fig.9. Eg. for huge Nth fractal scale $|\delta z| \gg 1$: AppA, fig1. So extreme $-1/4, -1.75$ solve $\delta C=0$ so are the only zoom pts in: <http://www.youtube.com/watch?v=0jGai087u3A> implying also our rational Cauchy sequence iteration is thereby $z_{N+1} - z_N z_N = C = -1/4, -3/16, -55/256, \dots, 0$. So **0** is a *real* number (eq M1)

II **Plugging eq1** directly **into** $\delta C=0$ is also required. So given eq1 and thus equations 3,4 $\delta C = \delta(\delta z + \delta z \delta z) = \delta \delta z (1) + 2(\delta \delta z) \delta z \approx \delta(\delta z \delta z) = \delta((dr + i dt)^2) = \delta[(dr^2 - dt^2) + i(dr dt + dt dr)] = 0 =$ (5) **Minkowski metric** + **Clifford algebra** \equiv **Dirac equation** (See eq7a γ^μ derivation from eq5.). But (N=0, 2D) $\delta \delta z 1$ must be small but not zero so it *automatically* provides 2 extra degrees of freedom for the (N=1, 2D) independent Dirac dr implying 2D Dirac + 2D Mandelbrot = 4D Dirac **Newpde** $\equiv \gamma^\mu (\sqrt{\kappa_{\mu\mu}}) \partial \psi / \partial x_\mu = (\omega/c) \psi$ for $v, e; \kappa_{00} = e^{i(2\Delta\varepsilon/(1-2\varepsilon))} - r_H/r, \kappa_{rr} = 1/(1+2\Delta\varepsilon - r_H/r); r_H = C_M/\xi = e^2 X 10^{40N}/m$ (fractal jumps $N = -1, 0, 1, \dots$) $\Delta\varepsilon \equiv m_e, \varepsilon = \mu$ are zero if no object B (appendix B, C, fig2)

Questions answered:

Note the ‘**postulate(0)** \rightarrow **Newpde**’ idea answers the most important questions that the mainstream doesn't even ask!!!! (davidmaker.com for backup.) Like:

1) What is the origin of mathematics? (that physics requires)

Answer: **list numbers-define symbols and** (single simple *axiom*) **postulate0: $z=zz+C$ implies *real0*** (C constant so $\delta C=0$. $z=zz+C$ eq1 needed for multiplicative properties of 0. To do this we simply have the numbers *define* symbols instead of connecting them with axioms. This replaces the many field-ring axioms with one simple axiom(0) so makes our derivation ‘first principles’.

2) Where does the Mandelbrot set come from?

Answer: That **real (0) implies a rational Cauchy sequence** doubling here as a (thereby required) iteration of eq.1 in $\delta C=0$ generating the Mandelbrot set.

3) Where does special relativity and the Dirac equation come from?

Answer: **equation 5** (resulting from plugging eq1 into $\delta C=0$, also required)

4) Where does the vacuum come from?

Answer: **eq.9**, One of the eq6 (ie $dr=dt$, $dt=-dt$, so: $dt=dr=0$) factors of real eq5.

5) What is the origin of the complex numbers and space-time?

Answer: eq1 is a quadratic equation resulting in eq.4 giving complex numbers (negative under the discriminant sqrt sign) $dr+i1dt=ds$ which is also **the origin of space-time** dr,dt .

6) Why is the speed of light c constant?

Answer: In eq4 the above natural unit $1=c=dr/dt$ is always a coefficient 1

7) Where does charge come from?

Answer: Charge $e^2=CM=-1.75$ (Fractal Mandelbrot set CM extremum comes from plugging iteration of eq1 into $\delta C=0$, Then plug eq.12 into eq16 getting $C_M/m=r_H=e^2/m$ charge/mass ratio)

8) Where does the cosmological oscillation come from? (We are in the expansion stage.)

Answer: **Newpde zitterbewegung oscillation on the $N=1$ fractal scale explaining cosmology!!!**

9) Where does general relativity (GR) come from?

Answer: The Newpde κ_{ij} for $N=-1$ fractal scale(top of fig2).

10) Where does quantum mechanics (QM) come from?

Answer: Invariance of eq5 circle and so eq11 QM operator formalism. Also the 3rd order Taylor expansion term of $\sqrt{\kappa_{ij}}$ replaces renormalization(appendix B).

11) Where does the strong force come from?

Answer: Newpde half integer spherical harmonic $2P_{3/2}$ at $r=r_H$ with B **flux quantization** gives ultrarelativistic $+e s$ ($\gamma=917$ explaining large baryon mass) so extremely **narrowed E field lines at center** hence a huge force there (partII, davidmaker.com. QCD and gluons are not required.)

12) Why does the (SM core of modern physics) idea ($SU(2)XU(1)_L$) feature complex numbers?

Answer: $SU(2)$ is rotation in the 2D complex plane, so from **eq.4**. $U(1)$ is **CM** (see C9). L left handedness from Newpde $e+v=G_{oo}=0$ so in this same 2D uniform space-time (appendix C8).

13) Where does the weak force component of the SM come from?

Answer: We generate the Fermi G_F from **object C** field tensor(appendix C7)Newpde solution

14) Is there dark matter?

Answer: No. These quantized gravity anomalies (they use for evidence) arise from the **fractal nature of space-time** instead. So, since there is quantization on the subatomic scale there is metric quantization on the cosmological scale. $g_{oo}=\kappa_{oo}$ is the fractal scale bridging (N and $N-1$) condition giving the metric quantization math (See end of appendix B and partIII davidmaker.com).

15) How does the universe work?

Answer: **Postulate0**.

16) Where does gravity come from?

Answer: From **$N=-1$** . See figure 2. So $e^2 10^{40(-1)}=Gm_e^2$ solve for G . κ_{ij} for $N=-1$ with this G are the Schwarzschild metric. Thus we derived gravity from merely substituting **$N=-1$** into the Newpde.

17) Where does the neutrino come from?

Answer: It comes out of **eq.8** (in the context of the New pde resultant Dirac eq.20).

18) Where does the neutrino mass come from?

Answer: $E_e+\sigma^*p_v=G_{oo}\neq 0$ **non uniform field**(C8) . Dirac $+m=G_{oo}$ for matter neutrino, $-m$ for antineutrino. Note from appendix C8 this m depends on the size of the nonuniform G_{oo} .

19) Why is there more matter than antimatter?

There isn't. Our $2P_{3/2}$ at $r=r_H$ half integer spherical harmonics has two positrons and one electron in the proton and one orbiting electron making up hydrogen the most common element. So they are in equal amounts.

20) What is the pion field?

Answer: That virtual creation-annihilation process inside r_H (center -e infrequently annihilates one of the positrons +e) **changing the B field there causing a Faraday law emf outside** giving the eq. 9.22 **zpe pions nonzero motion energy**. This explains the Yukawa force pion cloud.

21) Why is the proton m_p heavy relative to the electron m_e ?

Answer: The $2P_{3/2}$ two positrons at $r=r_H$ move at ultrarelativistic speeds($\gamma=917$) because of B

field flux quantization. $\Phi = BA = \frac{\mu_0 i}{2r_H} (\pi r_H^2) = \frac{\mu_0}{2r_H} \left(\frac{e}{\left(\frac{2\pi r_H}{\gamma c}\right)} \right) (\pi r_H^2) = \Phi_0 N = 3\Phi_0 = \frac{h}{e} 3$

B inside equals $\sim 10^{12}T = \mu_0 i / 2r_H$ ($i=e/t$, $c=2\pi r_H/\gamma t$). partII. Solve for γ . Get 917. So $2X917m_e=m_p$. Meisner effect zpe (zpe pions,eq9.22) so small B *outside*. The two positron motion also implies ortho and par states (from the Clebch Gordon coefficients).

22) What are magneto stars?

Answer: The force of a supernova implosion **squishes out** these Meisner effect zpe (pions,eq.9.22) **so we see the bare $10^{12}T = B$** proton field. As the neutron star expands(in months) the zpe returns rapidly(so fast radio burst)

23) What is the deuteron?

Answer: **Two $2P_{3/2}$ (protons) with an electron in between at r_H** . Can compute its binding energy= $2e^2/r_H$ The neutron is half a deuteron: So $2P_{3/2}$ with electron. It's extra mass is from $m_p c^2 + e^2/r_H + m_e c^2$.

24) Where do the 4 SM Bosons come from?

Answer: The Mandelbrot set perturbations in eq16 are the same as rotations on that e, ν plane given by eqs7-8. The 4 axis' are max extreme of $\delta(dr+dt)=0, \delta ds^2=0$ just as 45° is min. One axis rotation is just what we have but **two axis' rotations** are new (appendix) There are **4 of them giving the 4 SM bosons** -W,+W,Z, γ thereby deriving the Standard Model of Particle Physics

25 Why does the photon have no mass?

Answer: Uniform space-time neutrinos have no mass either (eq8 and $E_e + \sigma^* p_\nu = G_{00} = 0$) but obtain -m,+m mass in a nonuniform gravity($C8, G_{00} \neq 0$). In the **quadrant IV to I rotation(giving Maxwell's eqs.(C4)**, Lorentz force and so the γ) the +m quadrant I and -m quadrant IV neutrinos **ms cancel** out leaving the photon γ with no rest mass.

26) Why is the neutrino left handed?

Answer: In uniform space-time $E_e + \sigma^* p_\nu = 0$ so $E_e = -\sigma^* p_\nu$ with the negative sign meaning left handed given positive E_e (appendix C8)

27 Why do W,Z,t,H have large masses m?

Answer: Recall $2P_{3/2}$, $2P_{1/2}$ at $r=r_H$ constrains the two positron ortho-para states. In above orbit plane **Para state** on z axis($2P_{1/2}$) the **Compton wavelength λ is shrunk** (Fitzgerald contraction) by $\gamma=917X$, so huge $m=h/c\lambda$. Muon inside this r_H μ motion(eq.25) creates another muon μ so 2μ (appendix C5 and partII)

Inside r_H Para states (from top, X917, part2)

Muon shrink: $917(\epsilon/(1\pm\epsilon))$ weak interaction.

$917(\epsilon/(1+\epsilon)) = Z_0, J=1, 80$ Gev e-e rotation so 0 charge Appendix C5

$917(\epsilon/(1-\epsilon)) = W_\pm, J=1, 91$ Gev; e- ν rotation so charged with ν decay

2 Muon shrink: $917(2\varepsilon/(1\pm 2\varepsilon))$ the fundamental para state

$917(2\varepsilon/(1+2\varepsilon))=t$, $J=1/2$, 173GeV. So the top is two para parallel μ , added e baryonic
 $917(2\varepsilon/(1-2\varepsilon))=207\text{GeV}$. Added e makes it baryonic

Outside Para state

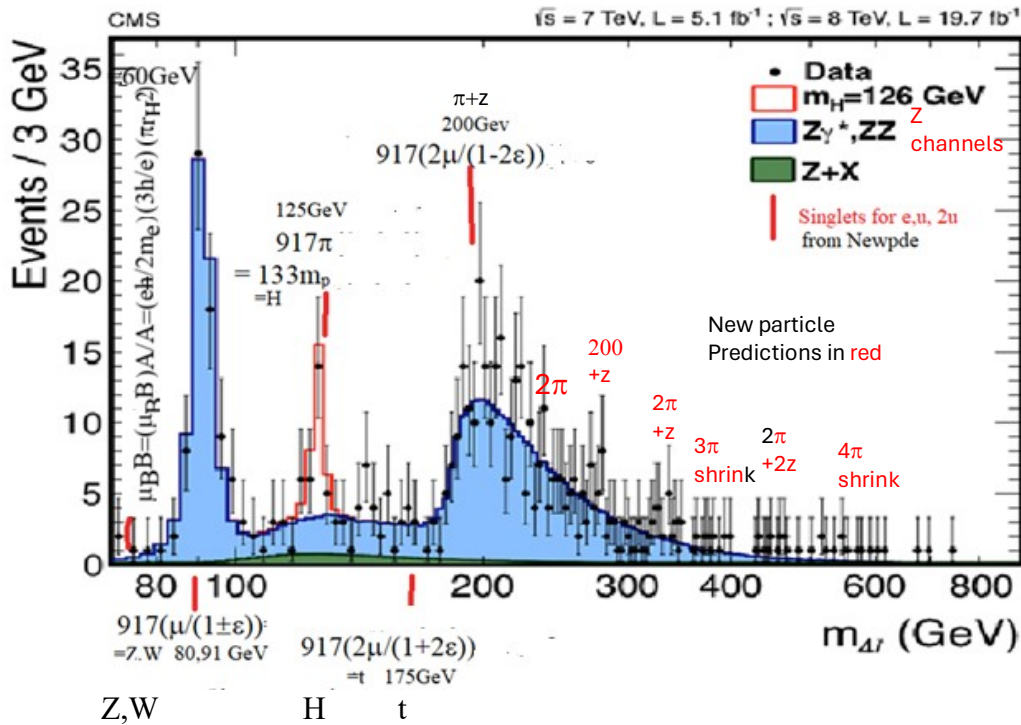
$917\pi = H$, 125GeV. H is merely a para parallel π , outside zpe for the para solutions
 These large (917X) masses solve the hierarchy problem.

Ortho States (from side, X2, eq.7.1)

The three ortho states are Ξ_s, Ξ_c, Ξ_b . with Frobenius series multiplet perturbations of these ortho states (PartII, Chs8-10). Proton is the ground state for the s Frobenius series solutions.

The three ortho states are Ξ_s, Ξ_c, Ξ_b . with Frobenius series multiplet perturbations of these ortho states (PartII, Chps8-10). Proton is the ground state for the s Frobenius series solutions.

Note these para $\gamma=917X$, tiny λ , so huge $m=h/c\lambda$, solve the hierarchy problem and explain every part of the p-p collision data curve from the (huge) CMS detector at LHC!



This theory is falsifiable- testable. So here are some predictions of (hopefully) future experiments and astronomical observations:

Predictions

1) In 50 years the new muon gyromagnetic ratio* will be $g_y=1165932249$ (1 part in 10^{-5} . The present one is 116592059) with the muon mass thereby going from $1.883531627 \times 10^{-28}\text{kg}$ to $1.883531608 \times 10^{-28}\text{kg}$ in that same time period. It is a thousand times more accurate to measure this mass change by measuring the g_y change instead since these g_y experiments are so accurate* (sect A3 of part1, davidmaker.com).

2) The electron has a radius of about $r_H \sim 10^{-18}$ m implying that the **proton-proton scattering cross-section will peak at 21 Tev** with a peak at 7 Tev for single electron-electron scattering (part II). Need that new CERN accelerator to confirm this.

3) **$\cos\omega t$ universe expansion and contraction** ($r=r_0(1+\cos(\omega t-\pi))$) with clocks dt' running fast for distant observers ($dt'^2=(1-r_H/r)dt^2$) implying a universe much older than the nominal 13 by. ($\cos\omega t$ from new pde zitterbewegung $e^{i\omega t}=\cos\omega t+i\sin\omega t$). The DES-DES-CBR measurements imply the possibility of a $\cos\omega t$ oscillation already eg., "acceleration slowing" so big crunch? Much older universe implied by mature galaxies and black holes at 200 MY. Selfsimilar Dirac spin from excess of galaxies spinning one way.

4) **$F=(Adv/dt)/v^2$ pairing interaction force** for superconductors (appendix C4), thereby explaining them (without using those adhoc Lagrangian densities, eg., BCS.).

Copper oxide & Graphene SC 's already confirm this. Just show that in a future publication I guess.

5) The **neutrino mass** is not fixed, **varies with gravitational field gradients**. (In fact they have yet to determine its mass, appendix C8)

The 3 Neutrino's in the sun have a different mass than these neutrinos here. It is possible to experimentally confirm this too by observing the neutrino oscillations at different locations.

6) Wave particle duality comes from that 45° angle of the electron on that e, ν graph (sect. IIIC) where C noise position uncertainty is largest (wide slit) with ds^2 circle always wave (eq C1) then $C=0$ (narrow slit) gives only the wave: so wide slit particle (photoelectric effect), narrow slit wave, airy diffraction pattern hence wave -particle duality. This has already been verified experimentally.

7) There is no dark matter. That anomalistic (Zwicky, Rubin) gravity is a metric quantization phenomena. Just set $g_{00}=\kappa_{00}$ to get the mathematics (a fractal scale bridging condition) deriving the whole shebang ($v \sim N100$ km/sec halos, N integer). Can confirm this with *careful* asymptotic rotational velocity measurements of nearby galaxies. Actually, I already have this data (part III davidmaker.com). Gaia did it for our own.

8) So there should also be a 2π shrink $917(2\pi)$ explaining the asymmetry of that part of the CMS curve peaked at 200 Gev. A 2π shrink is near 250 Gev with the usual 3,4 pion shrinks etc extending that 200 Gev asymptote out to 400 Gev. For proton-proton LHC collisions, there is net charge, so neutral particle counts are smaller (eg $u Z_0=80$ Gev; $2u t_0=173$ GeV, $1\pi H=135$ GeV 2π charged at 280 GeV. W, Z Proca eq. (spin 1=J)W has ν in the rotation so accompanied by ν in decays. The min energy state for $2u$ gives $1-1=0=S$, Pions= π Klein Gordon field equation 9.22 for spin 0 $0-0=0=S$.

*From appendix A: (1st prediction above)

*Muon mass changes so its gyromagnetic ratio changes with time.

A1 N=2 observer sees that we see: Comoving Interior Frame

Recall $N>0 \equiv$ observer. Here we find what that N=2 fractal scale observer sees what we see if $\sin\mu \rightarrow \sinh\mu$ for $r>r_H$ going to $r<r_H$ in $E=1/\sqrt{\kappa_{00}}=1/\sqrt{(1-r_H/r)}$ since the E in $\delta z=e^{iEt} \equiv e^{i\mu}$ and so μ

then becomes imaginary. Recall limit R_{ij} as $r \rightarrow 0$ is the source, where gravity creates gravity in the Einstein equations which becomes the modulation of the DeSitter ball. (3.2).

$R_{22} = e^{-\lambda} [1 + \frac{1}{2} r(\mu' - \nu')] - 1$ with $\mu = \nu$ (spherical symmetry) and $\mu' = -\nu'$. So as $r \rightarrow 0$, $\text{Im} R_{22} = \text{Im}(e^{\mu} - 1) = \mu + \dots = \sin \mu = \mu + \dots$ for outside r_H imaginary μ for small r (at the source) so $\sin \mu$ becomes a gravitational source (gravity itself can create gravity as a feedback mechanism). The $N=2$ observer then multiplies by i in R_{22} , $-\sin \mu$ and μ to get $R_{22} = -\sinh \mu$ to see what the $N=2$ observer sees that we see inside r_H so:

$$R_{22} = e^{-\nu} [1 + \frac{1}{2} r(\mu' - \nu')] - 1 = -\sinh \nu = -(e^{\nu} - e^{-\nu})/2, \quad \nu' = -\mu' \text{ so}$$

$$e^{-\mu} [-r(\mu')] = -\sinh \mu - e^{-\mu} + 1 = -(e^{-\mu} + e^{\mu})/2 - e^{-\mu} + 1 = -(e^{-\mu} + e^{\mu})/2 + 1 = -\cosh \mu + 1. \text{ So given } \nu' = -\mu'$$

$$e^{-\nu} [-r(\mu')] = 1 - \cosh \mu. \text{ Thus}$$

$$e^{-\mu} r(d\mu/dr) = 1 - \cosh \mu$$

This can be rewritten as:
$$e^{\mu} d\mu / (1 - \cosh \mu) = dr/r \tag{A2}$$

The integration is from $\xi_1 = \mu = \varepsilon = 1$ to the present day mass of the muon = .06 (X tauon mass).

Integrating equation A1 from $\varepsilon = 1$ to the present ε value we then get:

$$\ln(r_{M+1}/r_{bb}) + 2 = [1/(e^{\mu} - 1) - \ln[e^{\mu} - 1]]^2 \tag{A3}$$

the equation that gives the comoving observer time evolution of the universe. The equation works near the min of the sinusoidal oscillation where we are slightly inside r_H .

The radial component $r = r_{M+1}$ in A3 is still a function of that r_{bb} mercuron radius Also the $\kappa_{oo} = 1 - r^2/r_H^2$ in A3 (instead of the external observer $\kappa_{oo} = 1 - r_H/r$) in $E = 1/\sqrt{\kappa_{oo}}$ in looking outward (internal observer) at the cosmological oscillation from the inside ($r < r_H$) implies that higher mass for $N=2$ fractal scale so smaller wavelength and larger energy so larger effect. So metric jumps with longer the wavelength on our scale imply higher energy cosmological effects that $N=2$ sees we see si we see it... So on $N=1$ fractal scale small wavelength cosmological oscillations (eg., object C $\Delta \varepsilon$ Period=2.5My) have much smaller effects than the larger wavelength oscillations (eg., ε Period=270My).

g factor = $g = e/2m$ and $w = gB = 2\pi f$ with f the Larmor frequency which is what you use to measure the g factor (like in MRI)

The anomalous gyromagnetic ratio $gy = g - 2$.

Note if the mass is decreasing then gy (and the g factor) goes up as well.

The difference in gy between 2023 (FermiLab) and 1974 (CERN) is

$116592059[22] - 11659100[10] = 1$ part in 10^5 increase which translates to 1 part in 10^8 increase in g since g is about 2000X larger than gy . Note g is increasing corresponding to a decreasing mass m in $g = e/2m$, by about 1 part in 10^8 over 50 years so about **1 part in 10^{10} over 1 year**, our predicted value.

Note the sine wave has a period of 10trillion years and we are now at 370billion years, near $\theta = -\pi/2$ in $r = r_o \sin \theta$ where the upswing is occurring and so accelerating expansion is occurring. This is where we start out at in the sect.A3 derivation. Since the metric is inside $r < r_H$ it is also a source as we see in later section 5.4.

So in **50 years the new $gy = 1165932249$** (1 part in 10^{-5}) with a muon mass going from $1.883531627 \times 10^{-28} \text{kg}$ to $2.883531608 \times 10^{-28} \text{kg}$ in that time period. It is a thousand times more accurate to measure this mass change by measuring the gy change instead since these gy experiments are so accurate.

Applications:

Solar Activity: The equatorial plasma tubes in the sun are a 1-2km/s transition metric quantization phenomena from the fractal scale bridging condition $g_{oo}=\kappa_{oo}$ (partIII) that comes from this Newpde.

$d^2|\sin\theta|/d\theta^2$ contribution to the MHD equation

We introduce $d^2|\sin\theta|/d\theta^2$ =current i (in the plasma tubes around the sun) into the iXB term in the MHD equation. Note that $d^2|\sin\theta|/d\theta^2$ gives a Dirac delta $\delta(0)$ spike in current (hence a solar flare) if $\theta\approx 0$. It is highly suggestive that the absolute power signs in that equation imply tidal forces and so the $\sin\theta$ really is proportional to an added area A where $\theta\approx\omega t$, $A\approx\pi r^2$ for a tidal case $|\sin\theta|\propto A$. In that regard Faraday's law is a time derivative of the magnetic flux= BA (solar $B\approx.5$ Gauss) that gives an electrical current i in $iR=EMF$. This new current i then gives a second $B=\mu_0 i/2r$ that can be substituted into a 2nd Faraday's law derivative application thereby getting that $d^2|\sin\theta|/d\theta^2$. So all we need to know is this θ (from ephemerides) and plug it into $d^2|\sin\theta|/d\theta^2$ to predict solar flares.

I wrote a fortran program that does this which in fact gives spectacular solar flare prediction results. Typical sample output of that fortran program:

Year	M	Day	Activity		
2024	5	11	1592	1.279467	
2024	5	12	1593	1.027791	
2024	5	13	1594	5.244556	
2024	5	14	1595	259.873957	largest solar flare in 20 years
2024	5	15	1596	134.050867	
2024	5	16	1597	57.827431	
2024	5	17	1598	22.114952	
2024	5	18	1599	7.541657	
2024	5	19	1600	2.251744	
2024	5	20	1601	0.949416	
2024	5	21	1602	2.495080	
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2024	7	15	1657	3.450741	
2024	7	16	1658	1.945462	
2024	7	17	1659	0.544201	
2024	7	18	1660	10.003868	X10 backside
2024	7	19	1661	2.318304	
2024	7	20	1662	6.292453	
2024	7	21	1663	15.694147	
2024	7	22	1664	36.094783	
2024	7	23	1665	194.146306	X14 backside
2024	7	24	1666	2.541665	
2024	7	25	1667	9.993804	
2024	7	26	1668	0.661466	
2024	7	27	1669	0.750510	
2024	7	28	1670	3.325172	

The 4th column is generic “solar activity” which could also be EUV and CMEs. Note the associated dates could also be for backside activity (So unobserved by LOS GOES xray) and are second derivative $d^2|\sin \theta|/d\theta^2$ change regions which then could also occur at upticks, which are more rare than these sharp peaks. Also large amplitude and times in this fortran program numerical output generates after shocks and growth in spot groups which persists over time. A lot of other extremely interesting solar phenomenology(eg neap suppression effects), besides just this flare prediction, comes out of this 4th column.

Propulsion N=1 scale and N=0 fractal scale for Kerr

$$\rho(r,\theta) \equiv r^2 + a^2 \cos^2 \theta, \quad \Delta(r) \equiv r^2 - 2mr + a^2$$

$$ds^2 = \rho^2 \left(\frac{dr^2}{\Delta} + d\theta^2 \right) + (r^2 + a^2) \sin^2 \theta d\phi^2 - c^2 dt^2 + \frac{2mr}{\rho^2} (a \sin \theta^2 d\theta - c dt)^2 \quad (1)$$

So from the associated geodesics $\frac{d^2 x^\mu}{ds^2} = -\Gamma_{\nu\lambda}^\mu \frac{dx^\nu}{ds} \frac{dx^\lambda}{ds}$ where

$\Gamma_{ij}^m \equiv (g^{km}/2)(\partial g_{ik}/\partial x^j + \partial g_{jk}/\partial x^i - \partial g_{ij}/\partial x^k)$ we get:

$$\Theta(\theta) = Q - \cos^2 \theta \left(a^2 (\mu^2 - E^2) + \frac{L_z^2}{\sin^2 \theta} \right)$$

$$Q = p_\theta^2 + \cos^2 \theta \left(a^2 (\mu^2 - E^2) + \left(\frac{L_z}{\sin \theta} \right)^2 \right) \text{ Carter constant}$$

$$\rho^2 \frac{d\theta}{d\lambda} = \pm \sqrt{\Theta(\theta)}$$

λ is an affine parameter with $\frac{dx^\alpha}{d\lambda} = -p^\alpha$. When $\mu > 0$ the affine parameter is related to the proper time with $\lambda = \tau/\mu$. $E = p_t$. $Q = \text{Carter's constant}$, $L_z = p_\phi$, $-\mu^2 = p^\alpha g_{\alpha\beta} p^\beta$. For $\theta \approx 90^\circ$

$$\frac{\mu \rho p d\theta}{d\tau} = \pm \sqrt{\Theta(\theta)}$$

$$\frac{rd\theta}{cd\tau} = \frac{dz}{cd\tau} = \pm \frac{\sqrt{\Theta(\theta)}}{\mu \rho}$$

$$\frac{d^2 z}{d\tau^2} = \pm \left(\frac{1}{2\sqrt{\Theta}} \right) c \frac{1}{\mu \rho} \frac{d\Theta}{d\lambda} = \pm \left(\frac{1}{2\sqrt{p_\theta^2}} \right) \frac{c}{\mu \rho} \frac{d \left(\cos^2 \theta \left(a^2 (\mu^2 - E^2) + \frac{L_z^2}{\sin^2 \theta} \right) \right)}{d\tau} = \pm \left(\frac{1}{2p_\theta} \right) \frac{ca^2}{\rho \mu} \cos^2 \theta 2E \frac{dE}{d\tau} =$$

$$\pm \left(\frac{1}{2p_\theta} \right) \frac{ca^2}{\rho \mu} \cos^2 \theta 2E \left(\frac{e}{m_e c^2} \right) \frac{dV}{d\tau} = \pm \left(\frac{1}{2p_\theta} \right) c \frac{a^2}{\rho \mu} \cos^2 \theta 2E \left(\frac{e}{m_e c^2} \right) \frac{dV}{d\tau} =$$

$$= \pm \left(\frac{1}{p_\theta} \right) c \frac{a^2}{\rho} \cos^2 \theta (NeV) \frac{Ne}{Nm_e c^2} \frac{dV}{d\tau} = \pm \left(\frac{1}{p_\theta} \right) c \frac{a^2}{\rho} \cos^2 \theta (NeV) \frac{e}{m_e c^2} \frac{dV}{d\tau} =$$

$$\left(\frac{1}{4(512k) \sqrt{\left(1 - \frac{v}{512k}\right) \left(1 + \frac{v}{512k}\right)}} \right) v \cos \theta \frac{v}{512k} \frac{dV}{d\tau} = \frac{d^2 z}{d\tau^2} \quad (2)$$

On the N=0 fractal scale eq2 is an oscillating rotator ($dV/d\tau$) at 512kV with axial thrust, a revolutionary propulsion method.

On the N=1 fractal scale eq2 is also an oscillating rotator also with axial thrust thereby creating those cosmological jets.