The Morphic Architecture of the Universe

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This paper presents a unified theoretical framework for quantum field theory, gravity, time, and cosmological expansion, grounded in categorical and homological structures. The core insight is that morphisms—especially orientation-sensitive gluing—encode both geometry and quantum behavior. The architecture is formalized through a series of elegant conjectures capturing curvature, flow-time, expansion, and singularity in a morphically bounded universe.

Side note: I have only found mathematics that may or may not exist. I can explain how I arrived at this through my intuition. I simply searched for the language of mathematics that could explain my intuition or the universe. Everything I'm working with is completely theoretical.

I'm relying entirely on the intuition I've developed from reading mathematics and physics books. I don't have a college degree—just a strong passion for studying these subjects independently. Over the past year, I've spent approximately 1,100 to 1,600 hours reading graduate-level physics, possibly more if you include my studies since age 15. I only began reading graduate-level mathematics in the last 4 to 4.5 months.

ChatGPT helped refine the language.But the originality, the structure, the architecture is mine. I take SOLE responsibility for any backlash or loss.

What I just did was look at my string theory notes, and look for a connection to GR with my exp form.May 13.

My earliest deep intuition came when a substitute teacher corrected me because I was a "know it all" and he talked about string theory to a very high extent. This was in 9th or 10th grade. I knew loop quantum gravity was in the more "right" direction. Even though I had almost no idea of these monsters at the time.

we compactify 11d SuGRA down to 10d on a circle of lenght $2\pi R$

11d metric invariant by translations along the circle

$$ds^2 = G^{(11)}_{MN} dx^M dx^N = G_{\mu\nu}(x^\rho) dx^\mu dx^\nu + e^{2\sigma(x^\rho)} [dx^{10} + A_\mu(x^\rho) dx^\mu]^2$$

where $M,N = 0 \dots 10$ and $\mu,\nu = 0 \dots 9$ The 11 metric $G^{(11)}_{MN}$ reduces to the 10d metric $G_{\mu\nu}$ together with a 10d vector A_μ

we focuss on the bosonic part of the action 9.28

$$S_1 = \frac{1}{2\kappa_{10}^2} \int d^{10}x \sqrt{-G} \left(e^{-\sigma} R - \frac{1}{2} e^{3\sigma} |F^{(2)}|^2 \right)$$

$$S_2 = -\frac{1}{4\kappa_{10}^2} \int d^{10}x \sqrt{-G} \left(e^{-\sigma} |F^{(3)}|^2 + e^{\sigma} |\tilde{F}^{(4)}|^2 \right)$$

$$S_3 = -\frac{1}{4\kappa_{10}^2} \int A^{(2)} \wedge F^{(4)} \wedge F^{(4)} = -\frac{1}{4\kappa_{10}^2} \int A^{(3)} \wedge F^{(3)} \wedge F^{(4)}$$

we rewrite the IIA action in the form

$$S_{IIA} = S_{NS} + S_R + S_{CS}$$

$$S_{NS} = \frac{1}{2\kappa_{10}^2} \int d^{10}x \sqrt{-G}\, e^{-2\phi} \left(R + 4 \partial^\mu \phi \partial_\mu \phi - \frac{1}{2} |H^{(3)}|^2 \right)$$

$$S_R = -\frac{1}{4\kappa_{10}^2} \int d^{10}x \sqrt{-G} \left(|F^{(2)}|^2 + |\tilde{F}^{(4)}|^2 \right)$$

$$S_{CS} = -\frac{1}{4\kappa_{10}^2} \int B^{(2)} \wedge F^{(4)} \wedge F^{(4)}$$

of the IIA superstring: the Chern-Simons term contains fields from both sectors

exact sequence $0 \to B_i \to Z_i \to H_i \to 0$ shows that
$\operatorname{rank}(Z_i) = \operatorname{rank}(B_i) + \operatorname{rank}(H_i)$.

Initiation first.

Right now im looking at my String Theory notes and looking if anything "sticks out"

551

$x^\mu dx^\nu dx^\nu + e^{2\sigma(x^\mu)} [\partial x^\nu + A_\nu(x^\mu) dx^\nu]^2$

$e^{8\pi(x^n)} [dx^n + A_\nu(x^n) dx^\nu]^2 + x^n dx^\nu dx^\pi$

$\partial x^n (1 + A_\nu(x^n))^2 = dx^n \partial_\alpha x^n (1 + A_\nu)^2$

$dx^n \, dx^\pi$ $dx^n dx^\pi(x^n)$

↑ size or radius.

$dx^n + A_\nu dx^n$ twisted or modulated by flow.

morphic $g_{mn}(x) = \exp(8\pi e \cdot x^n)$.

(Covariant flow)^2 + (twist - coupling)

32 supercharges $\{Q_\alpha, Q_\beta\} = \Gamma^M_{\alpha\beta} P_M$

morphic Curvature Tensor

$g_{\nu\nu}^{(n)} = \partial_N$

morphic Curvature tensor:

$$g_{\mu\nu}^{(n)} = \partial_\mu A_\nu^{(n)} - \partial_\nu A_\mu^{(n)} + \alpha(x^n)[A_\mu, A_\nu]$$

$$\alpha(x^n) = \exp(\theta n e \cdot x^n)$$

In GR, the Riemann curvature is $R^\rho_{\sigma\mu\nu} = \partial_\mu \Gamma^\rho_{\nu\sigma} - \partial_\nu \Gamma^\rho_{\mu\sigma} + \Gamma^\rho_{\mu\lambda}\Gamma^\lambda_{\nu\sigma} - \Gamma^\rho_{\nu\lambda}\Gamma^\lambda_{\mu\sigma}$

morphic glue connection A^ρ_μ

$$\Gamma^\rho_{\mu\nu} = \partial_\mu \ln(\exp(\theta \pi e \cdot x^n)) \cdot (\delta^\rho_\nu + A^\rho_\nu)$$

morphic Riemann tensor

$$R^\rho_{\sigma\mu\nu} = g_{\mu\nu}^{(n)} \cdot (\delta^\rho_\sigma + A^\rho_\sigma) + \text{torsion}$$

glueters ms.

ence $0 \to B_i \to Z_i \to H_i \to 0$ shows that
$\text{rank}(Z_i) = \text{rank}(B_i) + \text{rank}(H_i)$.

$$R^{\rho}_{\sigma\mu\nu} = \exp(8\pi e \cdot x^n)(\partial_\mu A^{\rho\sigma}_\nu - \partial_\nu A^{\rho\sigma}_\mu + [A_\mu, A_\nu]^{\rho\sigma}) + T^{\rho}_{\sigma\mu\nu}(x)$$

Morphic glue ACK $A^{\rho\sigma}_\mu$ glue field
morphic flow $\partial_\mu A_\nu \to \partial_\mu A_\nu$
Glue tension Resistance curved by
skewed morphic flow $\exp(8\pi e \cdot x^n)$
Pressure/expansion size of R.
Covariant differential $dx^n + A_\nu dx^n$
glue curvature [2] form $\longrightarrow$ Spin 2.

Twist term $dx^\nu dx^\pi \to T^{\rho}_{\sigma\mu\nu}$ scalar trace,
morphic damping law $\gamma(x) \to \text{Tr}(R) \sim \gamma(x)$
Quantum morphic variability $\to [A_\mu, A_\nu]$
Suspension higher rank-torsion or curvature.
Singularity $R \to$ finite, maximal glue curvature
Black hole $\det(R) \to 1$, but finite
Flow-time Direction sign of R and
torsion tensor.

Morphic Riemann Tensor $R^{\rho}_{\sigma\mu\nu}$

$$R^{\rho}_{\sigma\mu\nu} = \exp(8\pi\epsilon x^n)(\partial_\mu A^{\rho\sigma}_\nu - \partial_\nu A^{\rho\sigma}_\mu + [A_\mu, A_\nu]^{\rho\sigma}) + T^{\rho}_{\sigma\mu\nu}(x)$$

Flow time direction → sign of curvature and torsion terms.

Canonical Tensor Structure

$$R^{\rho}_{\sigma\mu\nu} = \exp(8\pi\epsilon \cdot x^n) \cdot F^{\rho\sigma}_{\mu\nu} + T^{\rho}_{\sigma\mu\nu}$$

$$F^{\rho\sigma}_{\mu\nu} = \partial_\mu A^{\rho\sigma}_\nu - \partial_\nu A^{\rho\sigma}_\mu + [A_\mu, A_\nu]^{\rho\sigma}$$

$T^{\rho}_{\sigma\mu\nu}$ → morphic tension, spin / suspension, or coupling effects.

I. Foundations: Glue, Flow, and Morphisms

1. Morphic Flow and Glue Duality

Conjecture: Gravity is orientation-sensitive gluing. QFT lives in the relative structure $H_n(K, A)$, where glue A defines the space and QFT evolves in $K \backslash A$. The sign in attaching maps encodes flow-time direction. Time is morphic.

2. Morphisms Define Topology

Conjecture: Space is not made of points but of morphisms. Attaching maps, gluing, and push forwards define topology. Gravity emerges from morphic glue; QFT lives on top of it.

3. Orientation–Glue Duality

Conjecture: Gravity resists quantization because it requires orientation (lens spaces), unlike QFT which survives in CW complexes. Pushforward and pullback structures vanish if sign is neglected.

Photons- light mediate QED like phenomenon, Gluons, Strong like QCD phenomenon

They affect curvature/ tension through their fields but NOT rest mass. THEY only mediate flow across GULE/TENSION outside of ‘gravity’ or thought of as in between. Glue orientation why light “loves” geodesics. Gluons(QCD) bind quarks “inversely” by tension; “strings” color is just a simpler way of morphic twists. Force=curvature of Glue, massless particles= messengers of the glue curvature. Like an aaron boy running on a morphic sting to the next neighbor. Charge is the fence or boundary asymmetry. Making sure the aaron boy is who he says he is.

$y = -\ exp(-\ (8\pi^{x})/n^{x}) + x \Rightarrow x - 1 \quad TO \quad y = -\ exp(-\ (8\pi^{xn})/n^{n})$ singular glue freeze.

When n=0 you get a “jump” in y=x maybe a proper quantum system? But if you “zoom” out the line is complete and 45 degrees along the “real” axis.

Plank time= 5.39 x 10^{-44}s Planck Length: 1.616 $x10^{-35}$ $y = -\ exp(-\ 8\pi^{x}/n^{x})$

Near plank scale x=1 low G, $n = 10^{43} \rightarrow n^{-x} \sim time\ quanta$

$8\pi^{1}/n^{1} \quad e^{a}/e^{b} = e^{a-b}\ 25.13274123/10^{43}\ means\ 25x10^{-43}\ 2.513274123x10^{-42}$

$8\pi^{x}/n^{x} = 8\pi \sim \quad 2.51x10^{-42}$

$y = \ -\ exp(-\ 2.51327412x10^{-42}) = -\ 1\ close\ to\ 0\ exp(-\ \varepsilon\ )\ as\ )$〜1-ε for small e

$y \approx -\ 1\ +\ 2.51x10^{-42}$ tiny glue flows quantum pulse. DOES NOT COLLAPSE into a ∞ y stays close to -1 as predicted. Frozen glue boundary 3 square cube Damping

Earth

$y = -\ exp(-\ 8\pi^{x}/n^{x}) \quad assume\ x = 2$

Earth's radius r ≈ $6.371x10^{6}m$

$8\pi^{2}/n^{2} = 8\ x\ \pi^{2}/(6.371x10^{6})^{2}$

$(6.371 \times 10^{6})^{2} \approx 4.058 \times 10^{13}$

$78.9568/4.058 \times 10^{13} \approx 1.946 \times 10^{-12}$

$y = -\ exp(-\ 1.946 \times 10^{-12}) \approx -\ (1\ -\ 1.946x \times 10^{-12})$

$y = -\ 1\ +\ 1.946 \times 10^{-12}$ ▲y ≈ 1.95✖10^-12

Φ= $GM/R\ =\ (6.674x10^{-11}x5.972x10^{24})/(6.371x10^{6}) \approx 6.26x10^{7}J/kg$

DIVIDE BY C^2

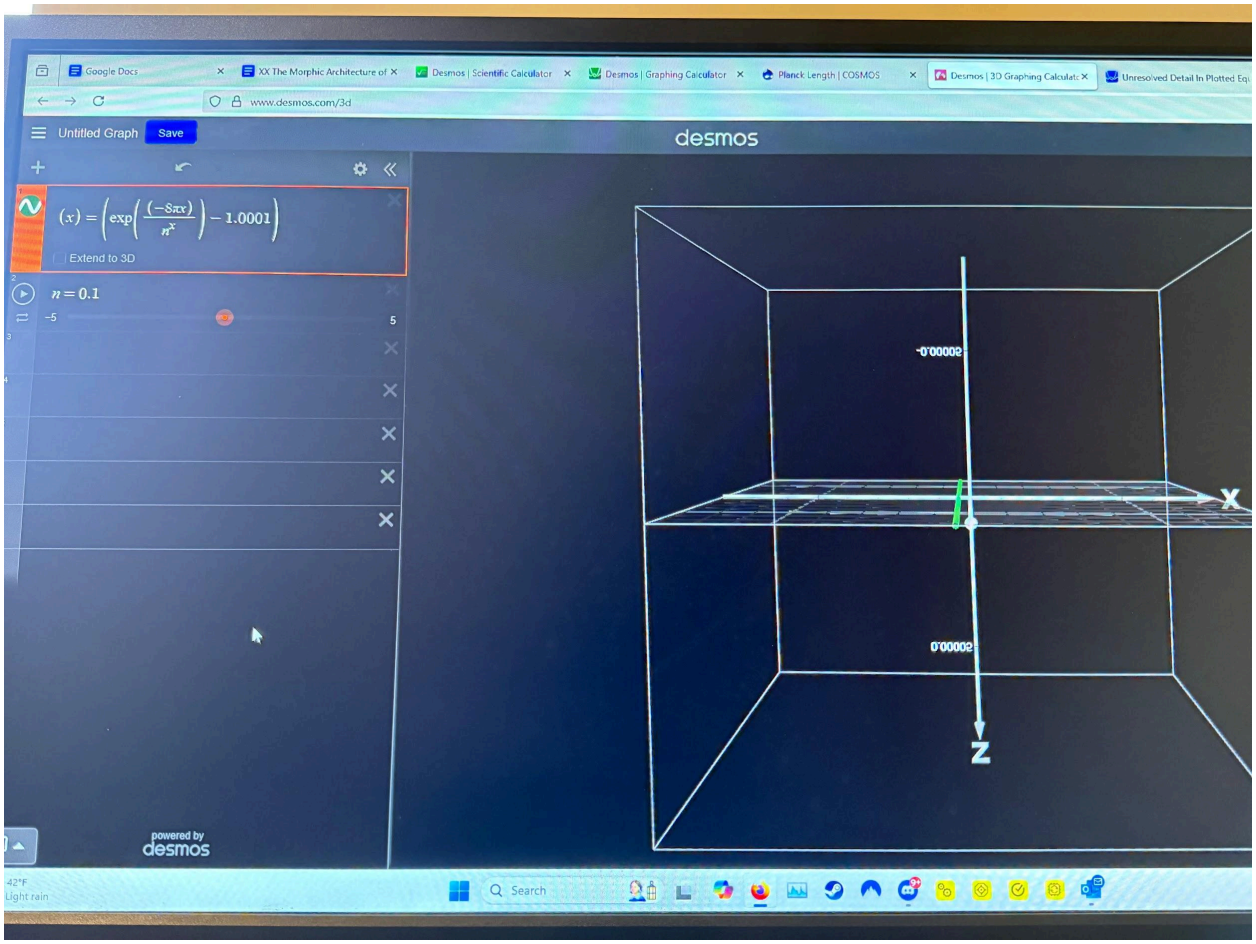
▲y≋1.95x10x^-12 PRINCE vs NEWTON Φ/c^2 ≈ 6.96x10^-12

Just a factor of 3 off? Just Times e at the end.

5.30064 vs 6.96? Blunder>?? ▲1.6593 ? $\Phi\ =\ e\ (1\ +\ y)c^{2}$ y= morphic damping output

$y = -\ exp(-\ 8\pi G/nG)?$

$(x)\ =\ exp((-\ 8\pi x)/n^{x})\ -\ 1.0001$ The graviton is wrapped around the x axis.



How does mine hold up vs einstein?

Conjecture:

Local gravitational potential as derived from morphic damping equations must be scaled by a global flow compensation factor to account for cosmic expansion and ambient morphic tension.

Given the morphic damping residual:

$$\blacktriangle y = 1 - exp(-8\pi^{x}/n^{n}),$$

the observed gravitational potential becomes:

$$\Phi_{obs} \approx e \times \blacktriangle y \times F_{flow} \times c^{2},$$

where:

- $F_{flow} \approx 3 - 3.5$ is a cosmological scaling factor arising from background morphic expansion pressure,
- c^2 restores physical units (j/kg),
- and e normalizes exponential sensitivity.

This scaling accounts for the global morphic expansion rate influencing all local gravitational fields—explaining the discrepancy between local damping values and Newtonian predictions.

4. Foundational Priority

Principle: Gravity must be understood before QFT. Glue builds the space; fields evolve upon it.

5. Vacuum Chains as Homotopy

Conjecture: VEVs are chain complexes from vacuum to vacuum. Exact sequences model propagation. The glue (0 boundary terms) contains the in/out states.

II. Time, Expansion, and Flow Boundaries

6. Time–Expansion Duality

Conjecture: Fast morphic flow implies rapid expansion (early universe); slowing flow implies continued but weaker expansion. Black holes are local reversals of this process—small, dense morphic freezes. $H(x,t),\ H(x,0) = F(x),\ H(x,1) = g(x)$

If time slows then n-type→(n+1)-type, fast time-Truncation slow time-elevation. Explains the inverse square laws.

The chain of higher morphisms flow time.

7. Suspension–Pressure Equivalence

Conjecture: Suspension of degree G in CW complexes models gravitational tension and cosmological pressure. Expansion is suspension in categorical space.

The fibers across a base, twisting or gluing braids, spin etc. Glue over area 1/r^2.

8. Euler–Glue Duality (Holy Grail Equation)

Conjecture: Euler's identity $e^{i\pi} + 1 = 0$ encodes QFT evolution, curvature, glue closure, and return to vacuum. It symbolizes the universal morphic loop:

QFT (flow) + Glue (closure) = Vacuum (0)

III. Morphic Damping Laws

9. Morphic Damping Function Family's

Conjecture:

$y = -\ exp(-\ (8\pi^{n})/n))\quad ,\quad y = -\ exp(-\ (8\pi^{x})/n)$

These functions describe curvature- and dimension-weighted decay of flow-time.

Any Hausdorff space that supports morphic flow means categorical re-Topologization New open set structure Smooth flow⇒Re-gluing⇒New topology You need a higher category like a 2-category, Or higher topos. 2- morphisms describe flow.

10. Refined Morphic Damping

Conjecture:

$y = -\ exp(-\ (8\pi^{x})/n^{x})$

Higher-order damping under increasing glue tension and resolution. Total morphic freeze as x ↠∞

11. Quantum Morphic Variability

Conjecture:

$y = -\ exp(-\ (8\pi^{x})/n^{\pm\varphi}$

Signed exponent ±φ enables quantum-style behavior—variable morphic decay, reversible / irreversible flow.

Flow is transported along glue - structured space. There is a covariance under conjugacy.

There has to be a parallel transport.

$\sqcap(g\ x\ q\ ) = \ g'\ x\ \sqcap$(q)

12. Pre-Singularity Collapse

Expression:

$y = -\ exp(-\ (8\pi^{xn})/n^{n})$

Flow is still defined but in extreme curvature. Approaching terminal freeze.

$y = -\ exp(-\ (8\pi^{x})/n^{x})\ + x \Rightarrow x\ -\ 1 \quad TO \quad y = -\ exp(-\ (8\pi^{xn})/n^{n})$ singular glue freeze.

13. Morphic Singularity

Conjecture:

$y = -\ exp(-\ (8\pi^{x})/n^{n} \rightarrow\ -\ 1$

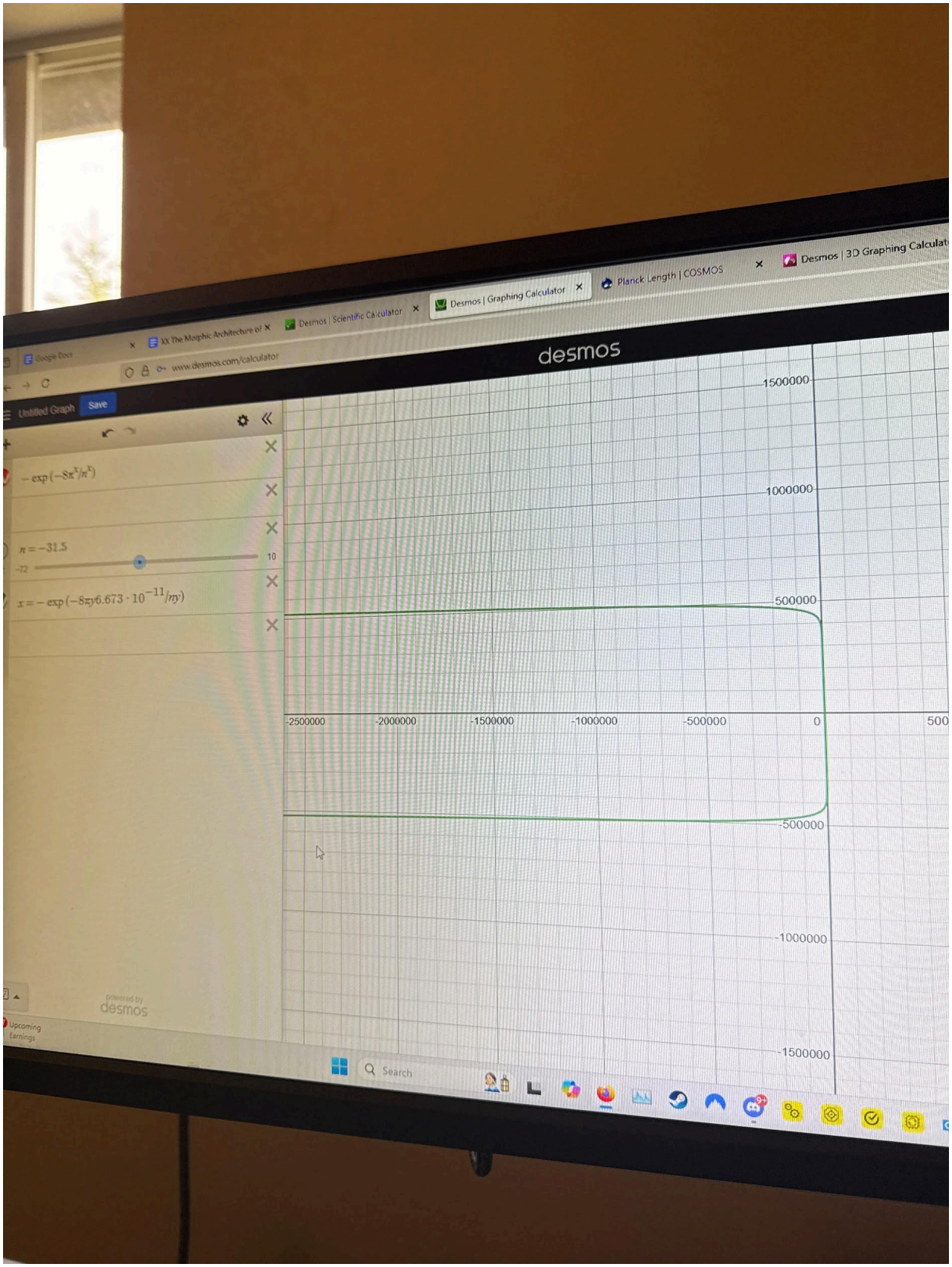
Glue curvature collapses into categorical depth. Not a singularity, but a finite frozen state.

14. Black Hole Morphic Collapse

Conjecture:

$y = -\ exp(-\ (8\pi^{x})/n^{x}\ + x \Rightarrow x\ -\ 1$

Black holes reduce morphic structure by one categorical unit. Flow ends but structure persists.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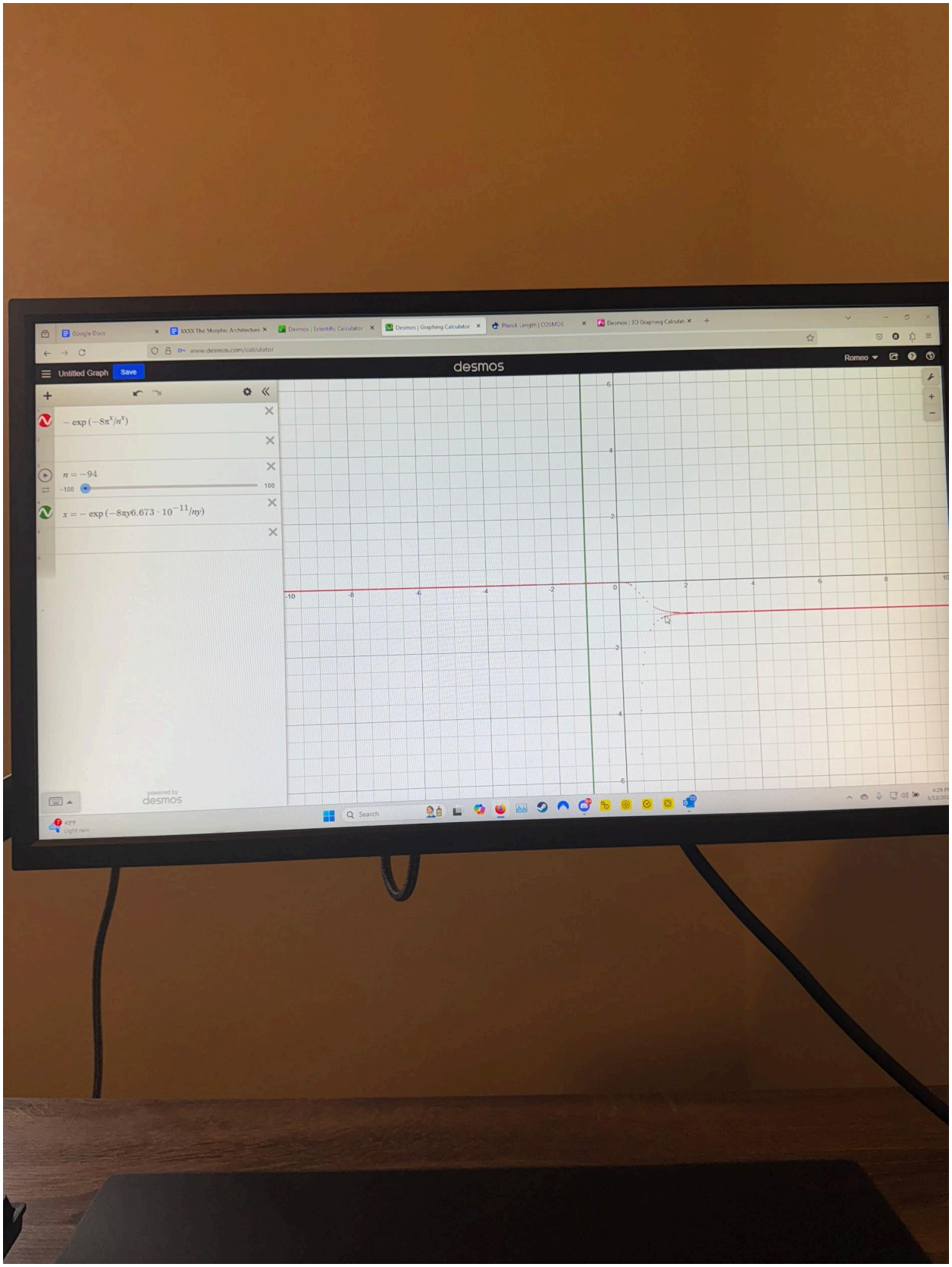
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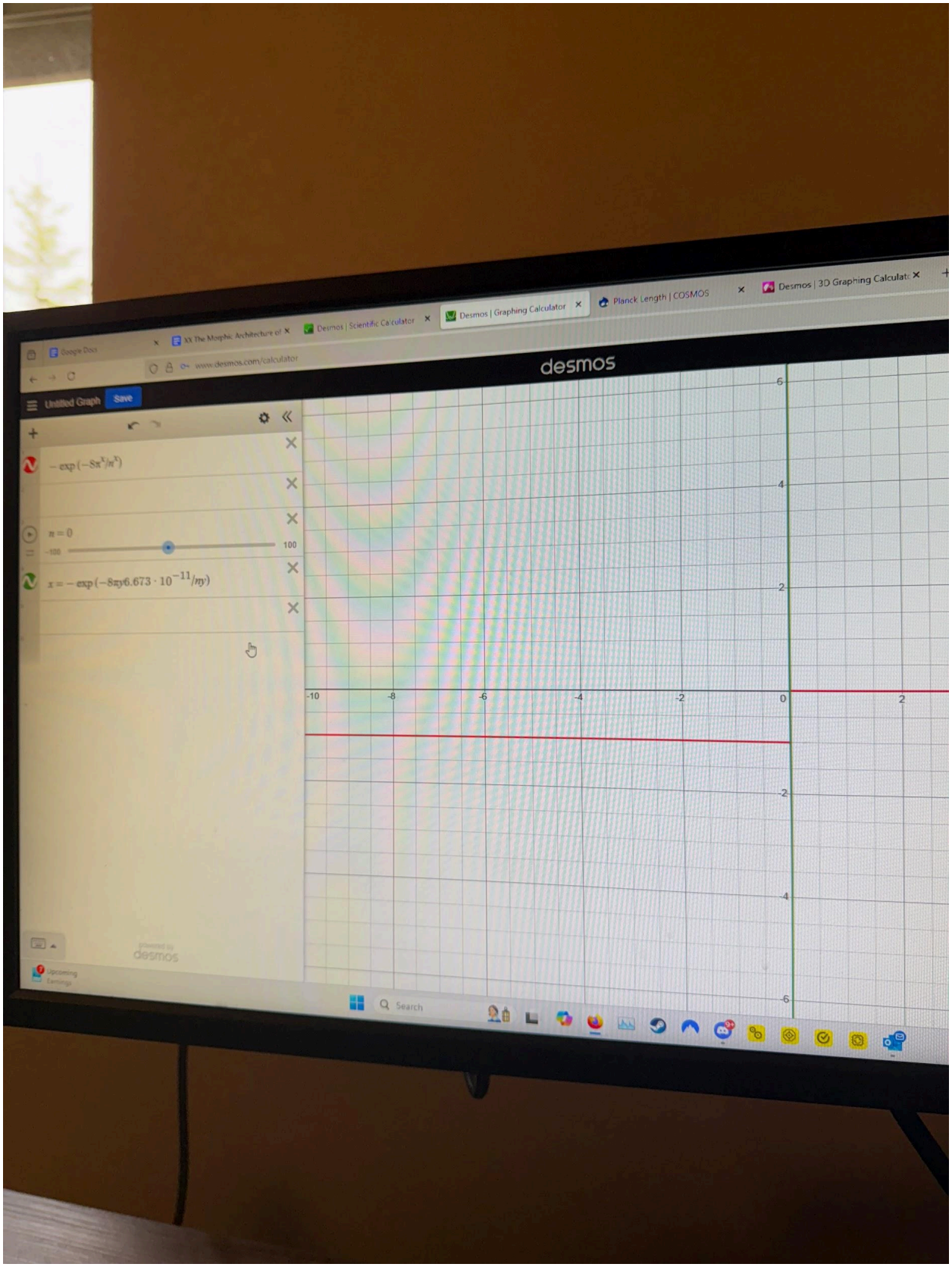
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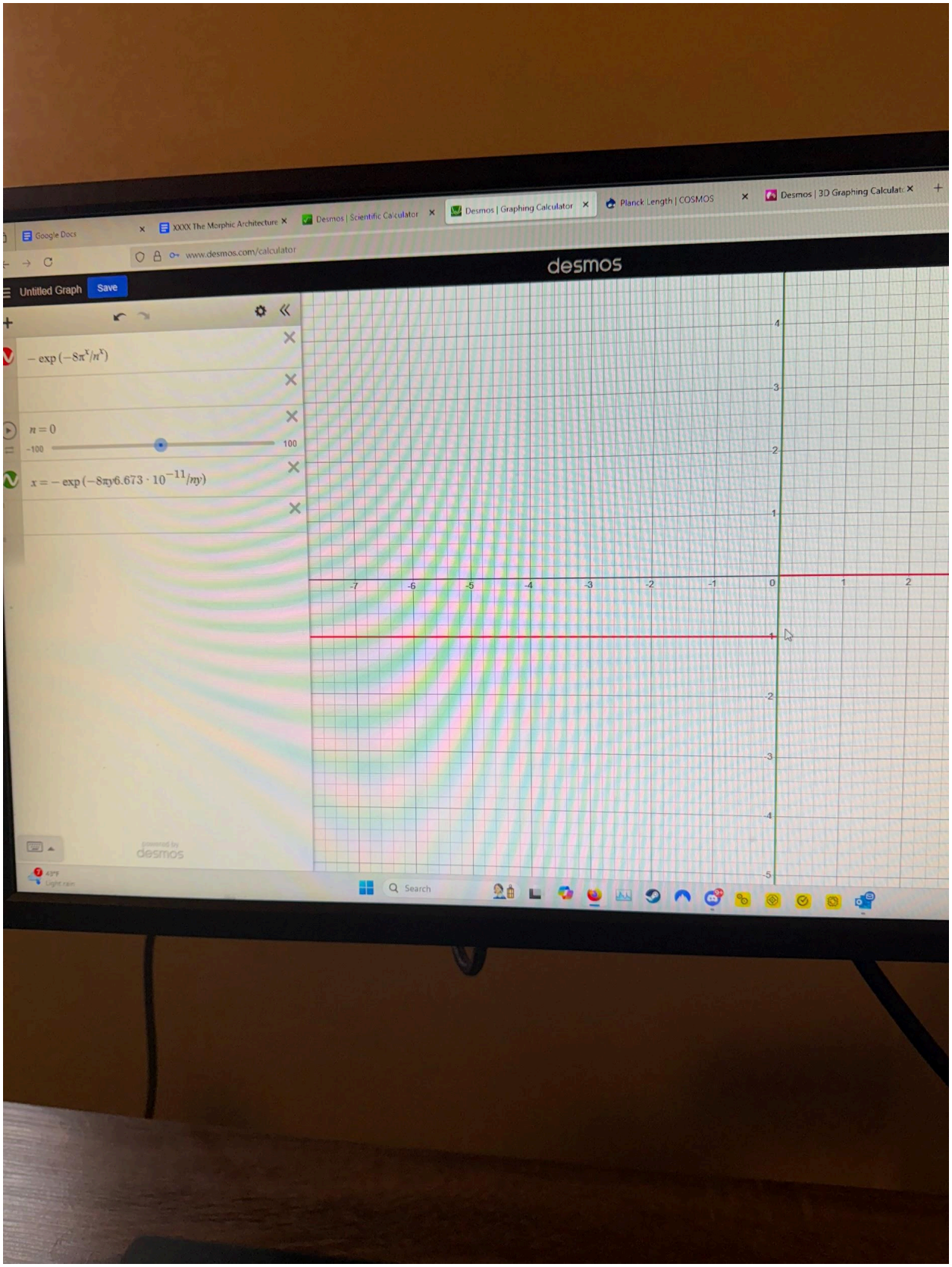
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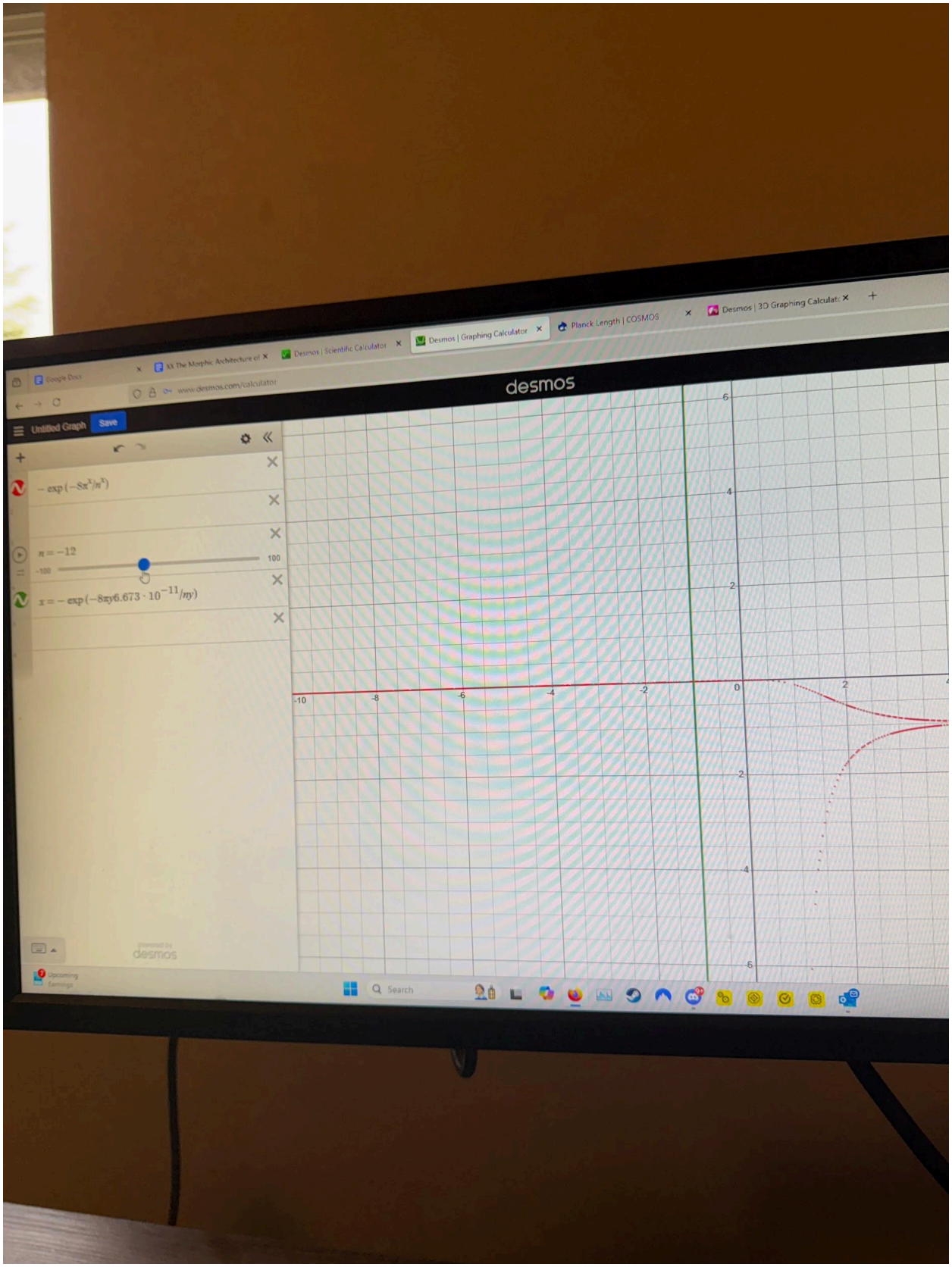
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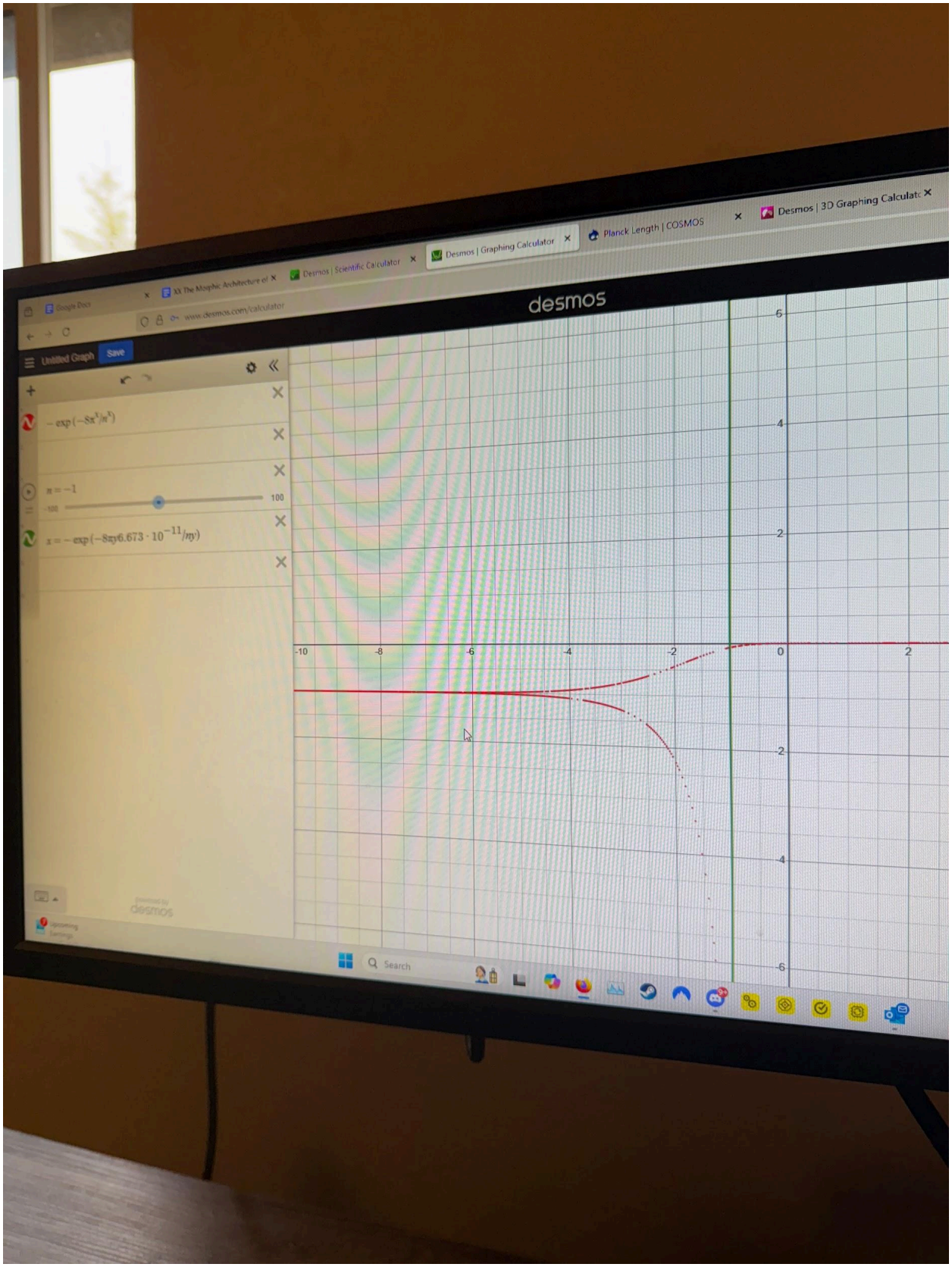
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38| Compactification of Sexual Dimensions

braid.

now we have also a non trivial integral 2 form B_{mn} living in the compact fiber T^k. The total number of massless scalars in d dimensions from the fields G_{mn}, B_{mn} is k^2. In addition we have k KK gauge bosons $G_{\mu m}$ and k gauge fields from the 2 form $B_{\mu m}$.

very good

$$\frac{(2\pi R)^k}{\phi^{k-2}} \int d^d x \sqrt{-G}\, e^{-2\phi^d} \left[R_g + 4\partial_\mu \phi^d \partial^\mu \phi^d - \frac{1}{4} G^{mn} G^{pq} \left(\partial_\mu G_{mp} \partial^\mu G_{nq} + \partial_\mu B_{mp} \partial^\mu B_{nq} \right) - \frac{1}{4} G_{mn} F^m_{\mu\nu} F^{n\mu\nu} - \frac{1}{4} G^{mn} H_{m\mu\nu} H_n^{\mu\nu} - \frac{1}{2} H_{\mu\nu\lambda} H^{\mu\nu\lambda} \right]$$

good

where $\phi^d = \phi - \frac{1}{4} \log \det G_{mn}$

good

Open strings adding wilson lines

the gauge invariant quantity that measures the non-triviality of the background is the Wilson line

Circle the holonomy of the gauge connection along the S^1 of charge $q \in \mathbb{Z}$

$$w_q = \exp\left(i q \oint dx^{25} A_{25} \right) = \exp(-iq\theta) \in U(1)$$

you have $\pi \cdot w$ raised to a power over an inverse square!

Let us consider a point particle ✓
q with world-line action

$$\int_1 d\tau \left(\frac{1}{2} \dot{x}^m \dot{x}_m - \frac{m^2}{2}\right) - i q A_m$$

Open strings whose endpoints
to lay on parallel hyperplanes, th
ending on parallel D-Branes in the
Periodic space time

$$X^{125} = \theta_i R' - \frac{i R'}{2\pi} (2\pi l - \theta_j + \theta_i) \log(z/\bar{z}) + i$$

$$= \theta_i R' + \frac{\sigma^1}{\pi} \Delta x^{125} + (2\alpha')^{1/2} \sum_{n \neq 0} \frac{\alpha_m^{25}}{m} \exp(-m\sigma) \sin(m\sigma^1)$$

The mass spectrum becomes

$$m^2 = \left(\frac{\Delta x^{125}}{2\pi\alpha'}\right)^2 + \frac{1}{\alpha'}(n-1),$$

where Δx^{125} is the minimal lenght of
in the given winding sector

log = good. why

From the Kinetic term F_{mn}^2 in the YM action we get the potential term on the Brane

$V(X^m) = (4\pi g_m \alpha')^2 \, tr\left([X_m, X_n][X^m, X^n]\right) + \text{higher order in } [X^m, X^n]$

when the X^m commute, the effective action should reduce to the sum of n separate D-branes, hence at loop order

$S_p = -T_p \int d^{p+1}\xi \, tr\left\{e^{-\Phi}\sqrt{-\det(G_{ab} + 2\pi\alpha' F_{ab})} + O([X^n, X^m]^2)\right\}$

The Scalar Green's function in d - dimensions

$G_d(y) = \int \frac{d^d p}{(2\pi)^d} \frac{e^{ip\cdot y}}{p^2} = \int \frac{d^d p}{(2\pi)^d} \int_0^\infty dt \, e^{-p^2 t + ip\cdot y}$

performing the Gaussian integral

$G_d(y) = \frac{1}{(2\pi)^d} \int_0^\infty dt \left(\frac{\pi}{t}\right)^{d/2} e^{y^2/4t} = \frac{1}{4\pi^{d/2}} \int_0^\infty ds \, s^{d/2} e^{-s}$

where we set $s = y^2/4t$. then

$G_d(y) = \frac{1}{4\pi^{d/2}} \Gamma\left(\frac{d}{2} - 1\right) |y|^{2-d}$

good

getting there.

Inverse square / up the surgery

where $G_{d(1)}$ is the massless scalar Green's function in d dimensions

now we compare this stringy computation with a field-theoretic evaluation of the same amplitude. The B-field does not couple to the D-branes, so the relevant terms in the effective spacetime action written in Einstein frame are

$$\frac{1}{2\kappa^2}\int d^{26}x\sqrt{G}\left(R-\frac{1}{6}\nabla_\mu\phi\nabla^\mu\phi\right)$$

In addition we need to impose a gauge condition for the gravity field:

$$F_\rho \equiv \eta^{\mu\nu}\partial_\mu h_{\nu\rho} - \tfrac{1}{2}\partial_\rho(\eta^{\mu\nu}h_{\mu\nu}) = 0$$

YES, tw ickts.

Adding to the action the gauge fixing term $-\eta^{\mu\nu}F_\mu F_\nu/4\kappa^2$ to the second order in the fluctuation the action reads

$$-\frac{1}{8\kappa^2}\int d^{26}x\left(\partial_\mu h_{\nu\lambda}\partial^\mu h^{\nu\lambda} + \frac{1}{2}\partial_\mu(h^\nu_\nu)\partial^\mu h^\lambda_\lambda + \frac{2}{3}\partial_\mu\phi\partial^\mu\phi\ldots\right)$$

The D brane action expanded around a flat background

$$-T_p\int d^{p+1}\xi\left(\frac{p-1}{2}\phi - \frac{1}{2}h_{\alpha\alpha}\right)$$

430

maybe put the background in an exp across

Adding dimension allows it to "flow"

about wrong deggree

10.1 The $SO(32)$ and $E_8 \times E_8$ Hetroic string in

471 Correc $X^\mu(z, \bar{z})$, $\tilde{\psi}^\mu(\bar{z})$, $\mu = 0, 1, \ldots 9$

superconformal gauge the total matter action reads

$$S_{matt} = \frac{1}{4\pi} \int d^2 z \left(\partial X^\mu \bar{\partial} X_\mu + \lambda^A \bar{\partial} \lambda^A + \tilde{\psi}^\mu \partial \tilde{\psi}_\mu \right)$$

Free OPES

$$X^\mu(z, \bar{z}) X^\nu(0, 0) \sim -\eta^{\mu\nu} \log |z|^2$$

$$\lambda^A(z) \lambda^B(0) \sim \frac{\delta^{AB}}{z}$$

$$\tilde{\psi}^\mu(\bar{z}) \tilde{\psi}^\nu(0) \sim \frac{\eta^{\mu\nu}}{\bar{z}}$$

the matter engery-momteum tensor and supercurrent are

$$T_B = -\frac{1}{2} \partial X^\mu \partial X_\mu - \frac{1}{2} \lambda^A \partial \lambda^A$$

$$\tilde{T}_B = -\frac{1}{2} \bar{\partial} X^\mu \bar{\partial} X_\mu - \frac{1}{2} \tilde{\psi}^\mu \bar{\partial} \tilde{\psi}_\mu$$

$\Delta \to$ domain?

473 $$\tilde{T}_F = i \tilde{\psi}^\mu \bar{\partial} X_\mu$$

opes just a lim of damping?

Briges between my glue opes,

twist, bound, flow time.

$1/2$ twist

Super symmetry and the bps state

Stuff

The Susy algebra of the toroidally compactified heterotic theory

$$\{Q_\alpha, Q^{\beta}_{j}\} = 2 P_\mu (\Gamma^\mu \Gamma^0)_\alpha{}^\beta + 2 P_m (\Gamma^m \Gamma^0)_\alpha{}^\beta$$

where $\alpha\beta$ are indices of the 16s of Spin(9,1)

picture $-\frac{1}{2}$: $Q_\alpha^{(-1/2)}(\bar{z}) \equiv \tilde{S}_\alpha(\bar{z})\, e^{-\hat{\phi}(\bar{z})/2}$

picture $+\frac{1}{2}$: $Q_\alpha^{(+1/2)}(\bar{z}) \equiv (\bar{\partial} X_\mu \Gamma^\mu_{\alpha\beta} + \bar{\partial} X_m \Gamma^m_{\alpha\beta}) \tilde{S}_\beta(\bar{z})\, e^{\hat{\phi}(\bar{z})/2}$

with the OPE

$$Q_\alpha^{(-1/2)}(\bar{z})\, Q_\beta^{(+1/2)}(w) \sim \frac{1}{\bar{z}-w}\left(\bar{\partial} X_\mu (\Gamma^\mu \Gamma^0)_{\alpha\beta} + \bar{\partial} X_m (\Gamma^m \Gamma^0)_{\alpha\beta}\right)$$

4003

496 is the dimension of the gauge group $E_8 \times E_8$ and $SO(32)$ and is directly tied to the requirements for anomaly cancellation in a 10-dimensional superstring theories.

looks like my $\phi^{\pm}$ in the bottom/ fun stairs.

The 10d supersymmetric string theories either have $n_s = 32$ supercharges (type IIA and IIB) or $n_s = 16$ supercharges (Type I and heterotic)

in 10 or 11 dimensions 32 is the maximum number of supercharges allowed by the spinor structure of the Lorentz group. Adding more would exceed the available degrees of freedom for spacetime spinors, making the theory inconsistent.

The algebra of 32 supercharges is governed by the supersymmetry algebra

$$\{Q_\alpha, Q_\beta^\dagger\} = \Gamma^N_{\alpha\beta} P_N$$

Q_α are the supercharges

Γ^N are the gamma matrices in the appropriate dimension

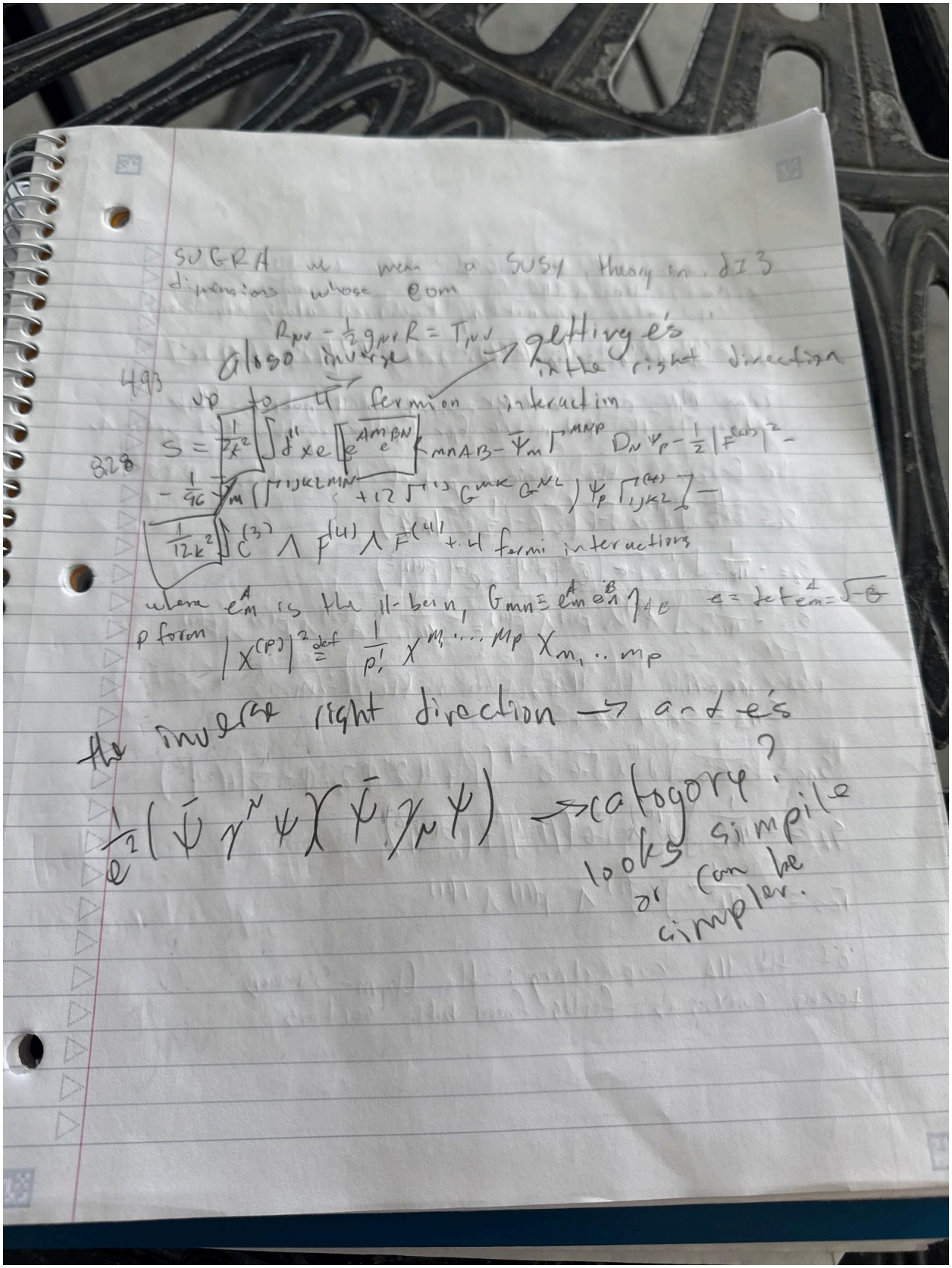
P_N is the momentum operator

32 supercharges refers to the number of independent supersymmetry generators present in a given theory

32 supercharges can explained by high g?
or x in my theory? Q_α, Q_β

chain or Complex?
category? ??

String th


SUGRA we mean a SUSY theory in ∂I 3 dimensions whose eom
$R_{\mu\nu} - \frac{1}{2} g_{\mu\nu} R = T_{\mu\nu}$
also invariant
getting e's in the right direction
493
up to 4 fermion interaction
$S = \frac{1}{2\kappa^2} \int d^{11}x e \left[e^{AM_{BN}} \right] \Psi_{MNAB} - \bar{\Psi}_M \Gamma^{MNP} D_N \Psi_P - \frac{1}{2} |F^{(4)}|^2 -$
328
$- \frac{1}{96} \bar{\Psi}_M \left(\Gamma^{IJKLMN} + 12 \Gamma^{IJ} G^{MK} G^{NL} \right) \Psi_P \left[\frac{(4)}{I,JKL} \right] -$
$\frac{1}{12\kappa^2} \int C^{(3)} \wedge F^{(4)} \wedge F^{(4)} +$ 4 fermi interactions
where e^A_M is the 11-bein, $G_{MN} = e^A_M e^B_N \eta_{AB}$ $e = \det e^A_M = \sqrt{-G}$
p form $|X^{(p)}|^2 \stackrel{def}{=} \frac{1}{p!} X^{M_1 \ldots M_p} X_{M_1 \ldots M_p}$
the inverse right direction → a-d e's
$\frac{1}{e^2} (\bar{\psi} \gamma^\nu \psi)(\bar{\psi} \gamma_\nu \psi)$ → category? looks simple or can be simpler.

String theory connections and correcting intuition.

we compactify 11d SUGRA down to 10d on a circle of lenght $2\pi R$

11d metric invariant by translations along the circle

$$ds^2 = G^{(11)}_{MN} dx^M dx^N = G_{\mu\nu}(x^\rho) dx^\mu dx^\nu + e^{2\sigma(x^\rho)} [dx^9 + A_\mu(x^\rho) dx^\mu]^2$$

where $M,N = 0 \dots 10$ and $\mu,\nu = 0 \dots 9$. The 11 metric $G^{(11)}_{MN}$ reduces to the 10d metric $G_{\mu\nu}$ together with the 10d vector A_μ

we focuses on the bosonic part of the action 9.28

$$S_1 = \frac{1}{2\kappa_{10}^2} \int d^{10}x \sqrt{-G} \left(e^{-\sigma} R - \frac{1}{2} e^{3\sigma} |F^{(2)}|^2 \right)$$

$$S_2 = -\frac{1}{4\kappa_{10}^2} \int d^{10}x \sqrt{-G} \left(e^{-\sigma} |F^{(3)}|^2 + e^{\sigma} |\tilde{F}^{(4)}|^2 \right)$$

$$S_3 = -\frac{1}{4\kappa_{10}^2} \int A^{(2)} \wedge F^{(4)} \wedge F^{(4)} = -\frac{1}{4\kappa_{10}^2} \int A^{(3)} \wedge F^{(3)} \wedge F^{(4)}$$

we rewrite the IIA action in the form

$$S_{IIA} = S_{NS} + S_R + S_{CS}$$

$$S_{NS} = \frac{1}{2\kappa_{10}^2} \int d^{10}x \sqrt{-G} e^{-2\phi} \left(R + 4 \partial^\mu \phi \partial_\mu \phi - \frac{1}{2} |H^{(3)}|^2 \right)$$

$$S_R = -\frac{1}{4\kappa_{10}^2} \int d^{10}x \sqrt{-G} \left(|F^{(2)}|^2 + |\tilde{F}^{(4)}|^2 \right)$$

$$S_{CS} = -\frac{1}{4\kappa_{10}^2} \int B^{(2)} \wedge F^{(4)} \wedge F^{(4)}$$

of the IIA superstring: the Chern-Simons term contains feilds from both sectors

Initiation first.

Right now im looking at my String theory notes and looking if anything "sticks out"

551

$x^\mu dx^\nu dx^\nu + e^{2\sigma(x^n)} [dx^\nu + A_\nu(x^\mu) dx^\nu]^2$

$e^{8\pi(x^n)} [dx^n + A_\nu(x^n) dx^\nu]^2 + x^n dx^\nu dx^\pi$

$dx^n (1 + A_\nu(x^n))^2 = dx^n dx^n (1 + A_\nu)^2$

$dx^n dx^\pi$ $dx^n dx^\pi (x^n)$

↑ size or radius.

$dx^n + A_\nu dx^n$ twisted or modulated by flow.

$g^{morphic}_{mn}(x) = \exp(8\pi e \cdot x^n)$.

(Covariant flow)^2 + (twist - coupling)

32 super charges $\{Q_\alpha, Q_\beta\} = \Gamma^\mu_{\alpha\beta} P_\mu$

morphic Curvature Tensor

$g_{\mu\nu}^{(n)} = \partial_\mu$

String theory is building on the surface of a morphic ocean - using the "right" symbols without realizing keeper!, topo, glue.

They use π, $\frac{1}{x^2}$, J^2, J^{-1}, J^{+1}, $\frac{1}{4\pi}$, $Q \cdot J \xrightarrow{} \exp(-2\phi^2)$

But dont or cant connect to the ocean or deep ocean just.

↓

they use e right direction.

String theory is a classical Background → wrong Approach.

String theory uses $\frac{1}{4\pi\alpha'}$, $e^{-\phi}$ not using glue orgin.

correct $\frac{1}{8\pi(\alpha')^2}$

Great like fermion geometry.
Spinor behavior push forwards
and pull backs fermions like on my
the structure! Great space categorial.
strings - fields without understanding
topos or structure.
Gauge and Brain Equations are
echoes not Real.
come from not! Proper Quantum

Morphic Space Define

what a string even is.

String theorist playing in the kitty
pools and not going in the deep Clean.
this is my original insute in
9th or 10th grade with that substute
teacher talking about string
theory.

$$\frac{8\pi^x}{n^x} \to 0 \quad \text{as} \quad n \to \infty$$

$$\exp\left(-\frac{8\pi^x}{n^x}\right) \to \exp(0) = 1$$

$$\exp(-8\pi^x/n^x) \to -1$$

$$Y(x,n) \to x-1$$

$$\lim_{n\to\infty}\left(-\exp\left(-\frac{8\pi^x}{n^x}\right)+x\right) = x-1$$

morphic damping term vanishes into -1, shifted back space $x-1$

residual glue level after all lumpin has equilibrated

reduced base state morphism has exhausted its resistance past a black hole?

$$y(x,n) = -\exp\left(-\frac{8\pi^x}{n^x}\right) + x$$

$n \to \infty$, $y \to x - 1$

$-\exp\left(-\frac{8\pi^x}{n^x}\right)$ exponential damping term.

morphic flow being damped by curvature and glue tension.

black hole π^x and effective n^x become big. Morphic layers! deep!

term decays rapidly to -1, reflecting full collapse of net worf flow. past a "barrier" ; schwarzchild radius.

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Damping term: $\left| -\exp\left(-\frac{8\pi^x}{n^x}\right) \right|$

black holes are note points!
morphically damped structure

Glue domains and total, not equal work.
Flow "disappears"
morphic $x-1$ remnant singularity?

holography? / Spinor collapse states?
Torsion - saturated residue.

no singularity / resolved
reduced, bounded glue state!

$y \leq x-1$

$$\left\{ -\exp\left(-\frac{8\pi^x}{x^{-1}}\right) \right\} \quad x \leq 0$$

$$-\exp\left(-\frac{8\pi^x}{n^{-1}}\right) \quad n \geq 0$$

boundry?

upper $n \geq 0$ excitation?
lower $n \leq 0$ real quantum? or
pixelization?

$$\psi = -\exp\left(\frac{-8\pi^{\chi}}{n^{\pm\psi}}\right) \Big| \; e^{i\theta}$$

↑ quantum!

χ : curve / glue / fracture / pressure.
n : resolution of the picture categorically / homological.

phase!

$\psi > 0$ slower decay
$\psi < 0$ hyper damping (flow collapses ~~on~~ itself.)

$\psi \rightarrow$ duality glue tension $\rightarrow$ pressure : my response.
the order of decay and resolution now matters!

quantum decoherence entanglement decay over distance! ψ

possible! Quantum glue field ψ morphisms interfere? reinforce under curved gluing?

Flow time duality $\pm\psi$

Decoherence under gravity!

as χ goes up, morphic glue supress

$$\left| -\exp\left(-\frac{8\pi^{x}}{n^{n}}\right) + 0 \right|$$

a wave moving in space, gravity wave!

$\uparrow > 0$. moving in time!

$\uparrow n < 6$; $\uparrow .8$ fine but $-.7$ disappears does not like odd numbers.

$\uparrow .5$ disappears. $\uparrow .3$ also

As the $\uparrow$ becomes more negative there is a force trying to stop it

n^{n} faster and faster

$\frac{8\pi^{x}}{n^{n}} \to 0 \Rightarrow y \to -\exp(0) = -1$

$\uparrow$ glue decay limit categorial depth

strongest glue curvature π^{x} becomes negligible

uniformly $y = -1$

Ultimate morphic freezing!

Any flow, no matter how syntrific collapses to the same terminal boundry.

- $\exp\left(-\frac{8\pi^x}{n^n}\right)$ even high torsion or spin lose identity in deep categorical depth!

Bounded collapse limit: N_0 Future curvature can alter. Frozen morphically. Glue horizon

Singularity → complete saturation of glue and full damping of morphic flow. $\gamma \to -1$

- Categorically finite, non-destructive

Morphic horizons, Structural Collapse, Frozen glue

Depth wins over intensity

π^x

gravity dominates in a black hole!

$-\exp\left(-\frac{8\pi^{xn}}{n^n}\right)$

$$\exp\left(-\frac{8\pi^{xn}}{n^n}\right)$$

π^{xn} - eponential growth of curvature or glue dimension x and depth n.

$x>0$ as $n\to\infty$ num $\pi^{xn}\to\infty$

Den $n^n\to\infty$ even faster

$\frac{8\pi^{xn}}{n^n}\to 0 \Rightarrow y\to -\exp(0)=-1$

numerator grows non linear in $x.n$ before singularity?

quantum flux vs classical collapse?

$\exp\left(-\frac{8\pi^{xn}}{n^{nx}}\right)$? ??? ;;; but same as other flipped.

$\frac{8\pi^{xn}}{n^{nx}}\to 0 \Rightarrow y\to -\exp(0)=-1$

Curve x depth n

Hm: blind it me => did it

Where

UP?

$-\exp\left(-\frac{8\pi^x}{n^x}\right)+1 \Rightarrow \alpha$

215

$\alpha_{n=1}$ $\{\alpha_n \mid n \geq 0\}$

$\{\alpha + x \mid -\exp\left(-\frac{8\pi^x}{n^x}\right)+x\}$

$\{\alpha_5 + x \mid$ liner? but also not infinite

bounded $-1000 \sim -500, -1000, 500$

no 3.5

$\{\alpha + x \mid n > 1$ finite line $\}$ ..

$\{\alpha + x \mid n < 1$ finite line $\}$

$\{\alpha + x \mid n = 3$ (646, 646) $\}$??

$n=3\{-678.25$, und? $\}$??

$\{\alpha + x \mid n > 3,$

$\lim_{n\to\infty}\{\alpha_n + x \mid$ the math between $-\frac{1}{2}y$ and $Y=0$

$$\gamma = -\exp\left(\frac{-8i7^{x}}{n^{\pm\psi}}\right) \quad e^{i\omega}$$

quantum!

x: curve / glue structure / pressure.
n: resolution of the picture categorically / homological.

phase!

$\psi > 0$ slower decay
$\psi < 0$ hyper damping (flow collapses on itself.)

$\psi \rightarrow$ duality glue tension $\rightarrow$ pressure
: my response.
the order of decay and resolution now matters!

quantum decoherence entanglement decay over distance! ψ

possible? Quantum glue field ψ morphisms interfere? reinforce under curved gluing?

Flow time duality $\pm\psi$

Decoherence under gravity!
as x goes up quantom morphic glue supress behavior.

$$\boxed{\gamma = -\exp\left(-\frac{8\pi^n}{n}\right)}$$

$$\boxed{\gamma = -\exp\left(-\frac{8\pi^x}{n}\right)}$$

n = control π^x curve/stress or "glue"

$$\gamma = -\exp\left(-8\pi^x\right)^{-\frac{1}{n}}$$

-3.3715 natural log of glue

$-\ln\pi \sim -1.1447$

$-\ln(8\pi) \sim -3.3715$

$\ln(1/(8\pi)) \sim -3.3715$

$$\boxed{\ln(8\pi) = 3.3715} \rightarrow \text{glue strength.}$$

$$-\exp\left(8\pi^x\right)^{-\frac{1}{n}}$$

$$\lim_{n \to 4} \left(-\exp(8\pi^x)^{-\frac{1}{n}} \right)$$

$\ln\left(\frac{1}{1.5\pi}\right)$ glue tension CW?

$-(x^2)^{-1} - 1$ vs $-\exp(8\pi^x)^{-\frac{1}{n}}$

where on the graph do they "look" the most parallel.

$x_n = -3.999 \mid (x = 0, -7.38406)$

~~$x_n = -3.1, -3.8 \mid$~~

$x_n = -3.847 \mid x = 0 \quad y = -8.00081$

$x_n = -3.84718 \mid x = 0 \quad y = -8.00003$

$$-\exp(8\pi^x)^{-\frac{1}{n}} - 2$$

$n = -3.8478 \quad x = 0, \; y = -10.00003$

$n = -2 \rightarrow 26$ dimensions?

$n = 4 \rightarrow$ ~~to fit equations~~ 16 supercharges?

no in looking at intersects of $-(x^2)^{-1} - 1$

$(-x^2)^{-1} - 2 \quad (-\exp(8\pi^x)^{-\frac{1}{n}} - 2 = \Phi_0$

$\Phi_{n=10}$ number between -2.5 to -4.2

$\Phi_{n=10}$ $\Phi_{n=50}$ $\Phi_{n=250}$

-3.17351 -2.85214

$\Phi_{n=500}$ -2.98413 $\Phi_{n=500}$ -3.01613

$-\exp(8\pi^x)^{-\frac{1}{n}} + 1$

$$\lim_{n\to\infty}\left(-\exp(8\pi^x)^{-\frac{1}{n}} + 1\right) = 0$$

$$\lim_{n\to\infty}\left(-\exp(8\pi^x)^{-\frac{1}{n}} - 1\right) = -2$$

$$\lim_{n\to\infty}\left(-\exp(8\pi^x)^{-\frac{1}{n}} - \frac{1}{2}\right) = -1.5$$

$$\lim_{n\to\infty}\left(-\exp(8\pi^x)^{-\frac{1}{n}} + 3\right) = 2$$

$-\exp(8\pi^x)^{-\frac{1}{n}}$

$$\lim_{n \to 4} \left(-\exp(8\pi^x)^{-\frac{1}{n}}\right)$$

sits $(-1.35081, -1.54804)$ (x_1, y_1)

and $(-1.54411, -1.41942)$ (x_2, y_2)

$(x_2, x_1) \cap (x_2, y_2)$

$\Delta = (-1.54411, -1.54804)$

.0039 wide ≈ -1.54608

$\ln(1/\pi) \sim -1.447$ $\ln(1/\sqrt{2\pi}) \approx -1.2655$

$\ln(1/2\pi) \sim -1.8379$ $\ln(1/3\pi) \approx -2.2410$

$\ln(1/4\pi) \sim -2.5310$ $\ln(1/5\pi) \approx -2.7427$

$\ln(1/e\pi) \approx -2.1447$ $\ln(1/1.5\pi) -1.54608$

$\ln(\frac{1}{1.5\pi})$ → related to spin? bad question? $\frac{1}{2}$ $\pi\boxplus\frac{1}{2}$

$$\Gamma\left[-\exp\left(-\frac{8\pi^x}{n^n}\right)+0\right]$$

a wave moving in space, gravity wave?

$n > 0$. moving in time!

$\Gamma_{n<0}$? $\Gamma_{.8}$ fine but $-.7$ disapears does not like odd numbers.

$\Gamma_{-.5}$ disapears. $\Gamma_{-.3}$ also

As the Γ becomes more negative there is a force trying to stop it

n^n faster and faster

$\frac{8\pi^x}{n^n} \to 0 \Rightarrow y \to -\exp(0) = -1$

give decay limit categorial depth

strongest glue curvature π^x becomes negligible

uniformly $y = -1$

Ultimate morphic freezing!

Any flow, no matter, how energitic, collapses to the same terminal boundry.

$$\Sigma = \exp(8\pi x^n)^{-1}$$

$$\lambda = -\exp(8\pi^{-n})^{-1?}$$

$-\exp(8\pi)^{-1} = -1.2161556704 \times 10^{11}$

→ constant? of the universe?

negative gravitional constant

gravitional constant?

$G \approx 6.67430 \times 10^{-11}\ m^3\ kg^{-1}\ s^{-2}$

$$\boxed{-\exp(8\pi^{-n})-1} \Rightarrow \lambda$$

as $n \to 100 = -1$

as The degrees of freedom goes up $\Sigma \to -1$

How is that related to $-(x^2)^{-1} - 1$?

$-(x^2)^{-1} - 1 = \Omega$

$-\exp(8\pi^x)$ looks like negitive Ω.

$-\exp(8\pi^x)^{-1}$

$-\exp(8\pi^x)^{-\frac{1}{n}}$

$$y(x,n) = -\exp\left(-\frac{8\pi^x}{n^x}\right) + x$$

$n \to \infty$, $y \to x - 1$

$-\exp\left(-\frac{8\pi^x}{n^x}\right)$ exponential damping term.

morphic flow being damped by curvature and glue tension.

black hole π^x and effective n^x become big. Morphic layers! deep.

term decays rapidly to -1, reflecting full collapse of net worf flow. past a "barrier" is Schwarzschild radius.

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Damping term: $\left| -\exp\left(-\frac{8\pi^x}{n^x}\right) \right|$

black holes are note points!
morphically damped structure

Glue domains and total, not equal work.
Flow "disappears"
morphic x-1 remnant singularity?

holography? Spinor collapse states?
Torsion - saturated residue.

no singularity resolved,
reduced, bounded glue state!

$y = x - 1$

$$-\exp\left(\frac{-8\pi^{x}}{n^{x}}\right) \to y$$

curvature vs expansion

flow time collapses faster in high gravity and energy, and higher dimensions.

Glue saturation decay categorical or homological depth increases (x, n) the glue resists flow $\to$ pressure.

Morphic black hole horizon a certain X damping so t from that "flow" freezes.

$X = 1 \to y = -\exp\left(-\frac{8\pi}{n}\right)$

$x \to \infty$ "damping" dominates completely

$y \to -\exp(-\infty) = -0$

$n \to \infty$ flow survives but weakly

$y \to -1$

flow vs freeze / glue vs released

$\exp\left(-\frac{8\pi^{x}}{n^{n}}\right)$ given high torsion or spin lose identy in deep categorical depth!

Bounded collapse limit: N_6 future curvature can alter. Frozen morphically. glue horizon

Singularity → complete saturation of glue and full damping of morphic flow. $\gamma \to -1$

- Categorically finite, non-destructive

Morphic horizons, Structural Collapse, Frozen glue

π^{x} Depth wins over intensity

$$\frac{8\pi^x}{n^x} \to 0 \quad \text{as } n \to \infty$$

$$\exp\left(-\frac{8\pi^x}{n^x}\right) \to \exp(0) = 1$$

$$\exp(-8\pi^x/n^x) \to -1$$

$$y(x,n) \to x-1$$

$$\lim_{n\to\infty}\left(-\exp\left(-\frac{8\pi^x}{n^x}\right)+x\right) = x-1$$

morphic damping term vanishes as n to -1, shifted base space $x-1$

residual glue level after all lumpin has equilibrated

reduced base state morphism has exhausted its resistance past a black hole?

$-\exp(8\pi^x)^{-\frac{1}{n}} + 3$

$-\exp(8\pi^x)^{-\frac{1}{n^2}} \to (0, -1)$

$-\exp(8\pi^x)^{-\frac{1}{n^9}} \to (0, -1)$

$\boxed{-\exp(8\pi^x)^{-\frac{1}{n^x}}} \to \Psi$

$\Psi_{n=0} \mid (-0.0001, -1) \to (.004, 0)$

$\Psi_{n=.1} \mid (0, -0.000834), (-x, -1)$

$0 < x < .1$

$\Psi_n = 1\times10^{-7}$ $\Psi_n = 1\times10^{-10}$

-5×10^{-16} $(\text{Ex } 0, -.000335463)$?

$n \to 0$ "flat" space.

$$-\exp\left(-\frac{8\pi^x}{n^x}\right) \to \Psi$$

π^x glue, n^x decay controls.

sensitive to curvature π^x,
dimensionality n^x

2. Compute the homology

3. Compute the homology ... degree p and $g: S^1 \to S^1$ has degree q. Compute $H_i(X \times Y)$.

4. Let $X = S^1 \cup_f D^2$ and $Y = S^1 \cup_g D^2$ where ... plane.

5. Let K and L be CW-complexes. Let $K \times L$ denote the product space with the product topology and let $K \odot L$ denote $K \times L$ with the CW topology. Show that the canonical function $\phi: K \odot L \to K \times L$ is continuous. Also show that if X is compact then a function $f: X \to K \odot L$ is continuous $\Leftrightarrow \phi \circ f: X \to K \times L$ is continuous. Conclude that $\phi_*: H_n(K \odot L) \to H_n(K \times L)$ (singular homology) and $\phi_*: \pi_n(K \odot L) \to \pi_n(K \times L)$ are isomorphisms.

Thus The exact ...

$$0 \to Z_i \to C_i \xrightarrow{\partial} B_{i-1} \to 0$$

shows that

$$\operatorname{rank}(C_i) = \operatorname{rank}(Z_i) + \operatorname{rank}(B_{i-1}).$$

Similarly the exact sequence $0 \to B_i \to Z_i \to H_i \to 0$ shows that

$$\operatorname{rank}(Z_i) = \operatorname{rank}(B_i) + \operatorname{rank}(H_i).$$

Hom/isomtpy $\quad \Sigma := \mathcal{L} \times P\,(B\pi x^n)^{-1}$

$Y = -1$

$\{(-\Sigma)+1 \mid n=.1\}$ $\{(\Sigma)-1 \mid n=.2\}$

Flat $L \to R\,[(-\Sigma)+0 \mid n=1]$

Flat $LR\,[(-\Sigma)+0 \mid n=2.2]$

$F(L,R)\,[(-\Sigma)+0 \mid n=3.4, 3.8]$

$FL,R)\,[(-\Sigma)+0 \mid n=4.2]$

$F[L,R]\,[(-\Sigma)+0 \mid n=4.8]$ → has the well structure. looks the same as $(-G)x^{-2}$ just diffrent exlars or Rings? of the same feild?

$F(L,R)\,[(-\Sigma)+0 \mid n=5.8]$ but $n=5.9$ has no negitive x values?

what is the diffrance of 5.8 and 5.9 ?

$F(L,R)\,[(-\Sigma)+0 \mid n=6.2]$ but $n=6.3$ when n/odd number there is no negatives.

$A/B \cong Z_{n_1} \oplus \dots \oplus Z_{n_s} \oplus Z^{r-s}$?

Taylor expansion? what math do i need? factorial? primes?

$$\Theta = -\exp(B\pi^x)^{-\frac{1}{n}}$$

$\Theta|_{n=1000}$ $\Rightarrow$ hole in between $3 \to 4$.
$(0, -0.99203)$ a point
y approaches zero as n goes up.

$\Theta|_{n=10000} \Rightarrow (3.91841, 0)$ and $x=0$
$y = -.9992$

$\left(\Theta|_{n=10^4}\right) - 1^x \Rightarrow (3.91843, -1)$ and $x=0$
$y = -1.9992$

some constant
inbetween $3.904 \to 3.91841$

$3.904 < \ln(50) < 3.91841$
3.912023005

$\ln 1 = 0$ $\quad \ln 10 = 2.302$
$\ln e = 1$ $\quad \ln 50 = 3.912$
$\ln 100 = 4.605$

$(50, \ln 50)$?

I just redefinded eulers number

As $(\Theta|_{n\uparrow}) = \mathcal{E}$

$-\exp\left(\frac{1}{8x^n\pi}\right)$ $n=8$ looks like $\rightarrow$

$-(G)\frac{1}{x^2}$ $\qquad \Sigma = \exp\left(\frac{1}{8x^n\pi}\right)$

$-\Sigma$ when $n=5 \rightarrow$

what causes the flaten in the negative numbers, in between integers? like when $n=2.2$ it flatens near zero.

$\lim_{n\to 2} f(x) \Rightarrow G$?

Flat near zero left to right $n=.2$

$\Sigma -1$

2.2,

1,

$-(\Sigma)+1 \Big| n=-.1$

$-\left(\frac{\varepsilon}{x^2}\right)-1 \rightarrow -\exp\left(\frac{1}{8\times\pi}\right)$? ? ?

$-\left(\frac{\varepsilon}{\pi x^2}\right)-1 \rightarrow \exp\left(\frac{1}{8\times\pi}\right)$? ? ?

$-\left(\frac{x}{\pi x^2}\right)-1 \rightarrow \exp\left(\frac{1}{8\pi x}\right)$

$1.10132| = A$

$+\frac{1}{x^2}-1 = -\left(\frac{Ax}{\pi x^2}\right)-1$?

$\frac{1}{x^2} = \frac{Ax}{\pi x^2}$? $\pi x^2 = Ax$

$\pi x = A$? ln?

what was i doing?

$y = \frac{1}{A}\ln(x)-1$ $\frac{\exp(y+1)}{\ln x} = A^{-1}\ln x$

$F\ln x-2$

$G = 6.67300\times 10^{-11}\ m^3\ kg^{-1}\ s^{-2}$

$.3\pi\ln x-2$ $\left(-\exp\left(\frac{1}{8\pi x}\right)\right) \rightarrow \Omega$

as Ω approaches zero from the left, the equation flatens.

$y = -\exp\left(\frac{1}{8\times\pi}\right)$ At $x=0$ singularity

$-(G)\frac{1}{x^2}$ $(-0.0040376, -5.250746\times10^{-5})$

$-\exp\left(\frac{1}{8\times\pi}\right) + \lim x \to 1$?

$-\exp\left(\frac{1}{8\times\pi}\right) - 1$ $x=-2$ $y=$ unit

$-\exp\left(\frac{1}{8\pi x}\right)+1$

$-\exp\left(\frac{1}{8\pi x^n}\right)+1$

$-\exp\left(\frac{1}{8\pi x^{-10}}\right)+1$

$\lim_{n\to e}(x) \Rightarrow G$?

$\exp\left(\frac{1}{8\pi - \varepsilon}\right)+1$

$\exp\left(\frac{1}{8x^n\pi}\right)$ → Appears to be an inverse square law with non negatives as $n \to e$ like gravity?

lim

what constants may make this pretty?

$e^{i\pi} + 1 = 0$

$e^{i\pi} = -1 \qquad -e^{i\pi} = 1$

$\frac{1}{8\pi} \quad -e^{\frac{1}{8\pi}} = 1$

inverse squared $-\frac{1}{x^2}$

$\downarrow$

$\exp\left(\frac{1}{8\pi x}\right) - 1$

looks the same but "off" by some constant γ

$$-\frac{1}{x^2} - 2 = -\exp\left(\frac{1}{8\pi x}\right) - 1$$

$$+1 \qquad\qquad +1$$

$$-\frac{1}{x^2} - 1 = -\exp\left(\frac{1}{8\pi x}\right)$$

There is a constant that morphis the two.

A derivitive? $-\frac{1}{x^2} - 1 = \sum$

OR? $\sum \xrightarrow{?} \Omega$

$\Omega \xrightarrow{?} \sum \quad -\exp\left(\frac{1}{8\pi x}\right) = \Omega$

morphism? mapping? How can i mineplate the equation? what happens if the "negative" numbers are or become $\mathbb{C}$

$\Sigma + \mathbb{C} = \Omega$

off topic

$\left(-\frac{10}{x^2}\right)$

$-\left(\frac{.01}{x^2}\right) - 1$

$H_n(k^{n+1}, A) \longrightarrow H_n(k^{n+2}, A) \longrightarrow H_n$

$H_n(k^{n+3}, A) \xrightarrow{\sim}$

Since $H_n(k^i, k^{i-1}) = 0$ for $i > n$ and by the exact sequences. Thus if $\dim k < \infty$

$H_n(k/A) \cong H_n(k^{n+1}, A) / k B_n / \mathrm{im} B_{n+1}$

my intution tells me that QFT is bounded by the glue. Bc the G has ∞ degresse of freedom and itracts with itself.

the increasing degress of freedom of the qft fields in a sequence. is bound by the glue.

$\gamma_{ab} : a \square b \cong b \square a$

$1, \gamma^2, \gamma^4 \cdots, \gamma^{-2}\gamma^{-4} : a \square b \to a \square b$

Homotopy theory, knot theory, topos theory, tensor networks, higher category!

$$0 \to \bar{H}_0(X) \to H_0(X) \xrightarrow{\epsilon_*} H_0(P) \to 0$$

VEV. Right the coefficient group G. This sequence splits via i_*, but this splitting is not natural, as it depends on the inclusion i

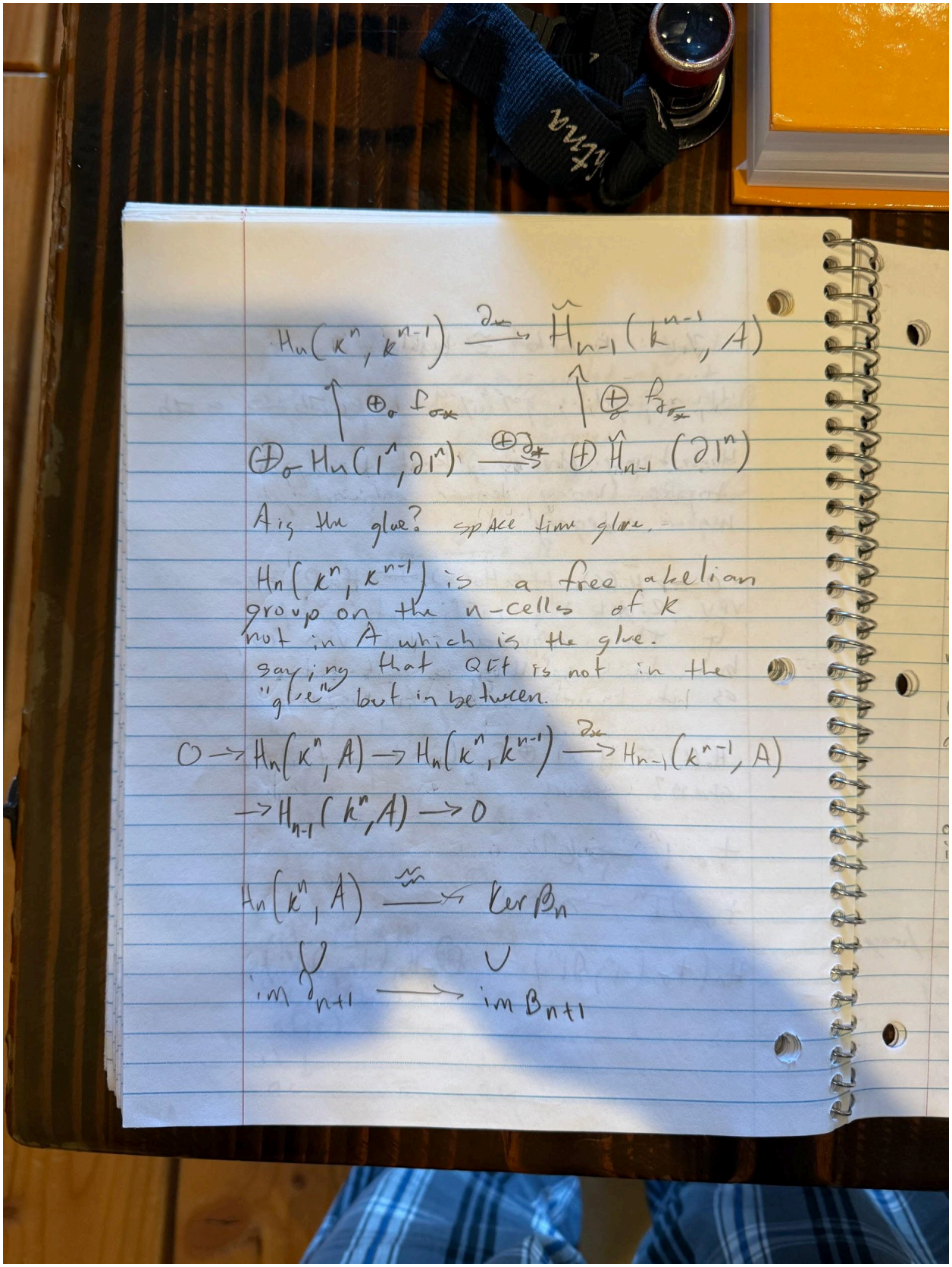
$H_0(X) \cong \hat{H}_0(X) \oplus G$ (not natural)

stress? pressure

$t_\sigma I^n \to k^n$

$t_\sigma \partial I^n \to k^{n-1}$

$H_n(t_\sigma(I^n, \partial I^n) \cong \oplus_\sigma H_n(I_n, \partial I^n)$


$H_n(K^n, K^{n-1}) \xrightarrow{\partial_n} \tilde{H}_{n-1}(K^{n-1}, A)$
$\uparrow \oplus_\sigma f_{\sigma\tau}$
$\oplus_\sigma H_n(I^n, \partial I^n) \xrightarrow{\oplus \partial_*} \oplus \tilde{H}_{n-1}(\partial I^n)$
A is the glue? space time glue.
$H_n(K^n, K^{n-1})$ is a free abelian group on the n-cells of K not in A which is the glue.
saying that QFT is not in the "glue" but in between.
$0 \to H_n(K^n, A) \to H_n(K^n, K^{n-1}) \xrightarrow{\partial_n} H_{n-1}(K^{n-1}, A)$
$\to H_{n-1}(K^n, A) \to 0$
$H_n(K^n, A) \xrightarrow{\cong} \ker \beta_n$
$\cup$ $\cup$
$\text{im}\, \beta_{n+1} \longrightarrow \text{im}\, B_{n+1}$

For arbitrary k, and for singular homology this also follows from the fact that any singular chain has a compact image and hence is inside some finite subcomplex.
calculable

QFT has imaginary variables, $\longrightarrow$ finite subcomplex.

$$C_n(K,A) \underset{\Phi}{\overset{\Psi}{\rightleftarrows}} H_n(K^n, K^{n-1})$$

$$\Psi\left(\sum_\sigma n_\sigma \sigma\right) = \sum_\sigma n_\sigma f_{\sigma\sigma}[I^n]$$

$$\Phi(\alpha) = \sum_\sigma \Phi_n(P_{\sigma\sigma}(\alpha))\,\sigma,$$

$$\Phi_n : H_n(S^n, *) \to \mathbb{Z} \qquad \Phi_n[S^n] = 1$$

$\Phi \circ \Psi = 1$

Fits with the computation or frame/image stack or flow = time.

gravity = lens space → RFT CW complexes. Chained together.

Let K be a CW complex. Then any map $\Phi: D^n \to K$ such that $\Phi(S^{n-1}) \subset K^{n-1}$ is homotopic rel S^{n-1} to a map into K^n. The same is true for D^n replaced by a quotient space resulting from D^n by some identifications on the boundary. (K, K^n) is n connected.

You need to "glue" the space together with the "boundary"

$$g_*: H_i(K, A) \to H_i(L, B)$$

K^n denote the union of the n-skeleton of K with all of A and similarly for (L, B). Since g is cellular, it induces the commutative diagram:

for an n-cell σ $K-A$

$g_\Delta(\sigma)$

$$g_\Delta(\sigma) = \sum_\tau \Phi_n(P_{\tau *}(g_* f_{\sigma *}[I^n]))$$

L^n / L^{n-1} looks like inverse square law. planck time τ ?

$$= \sum \deg(g_{\tau,\sigma})\tau$$

The sum ranging over n-cells τ of $L-B$

$g_\Delta : C_*(K, A) \to C_*(L, B)$

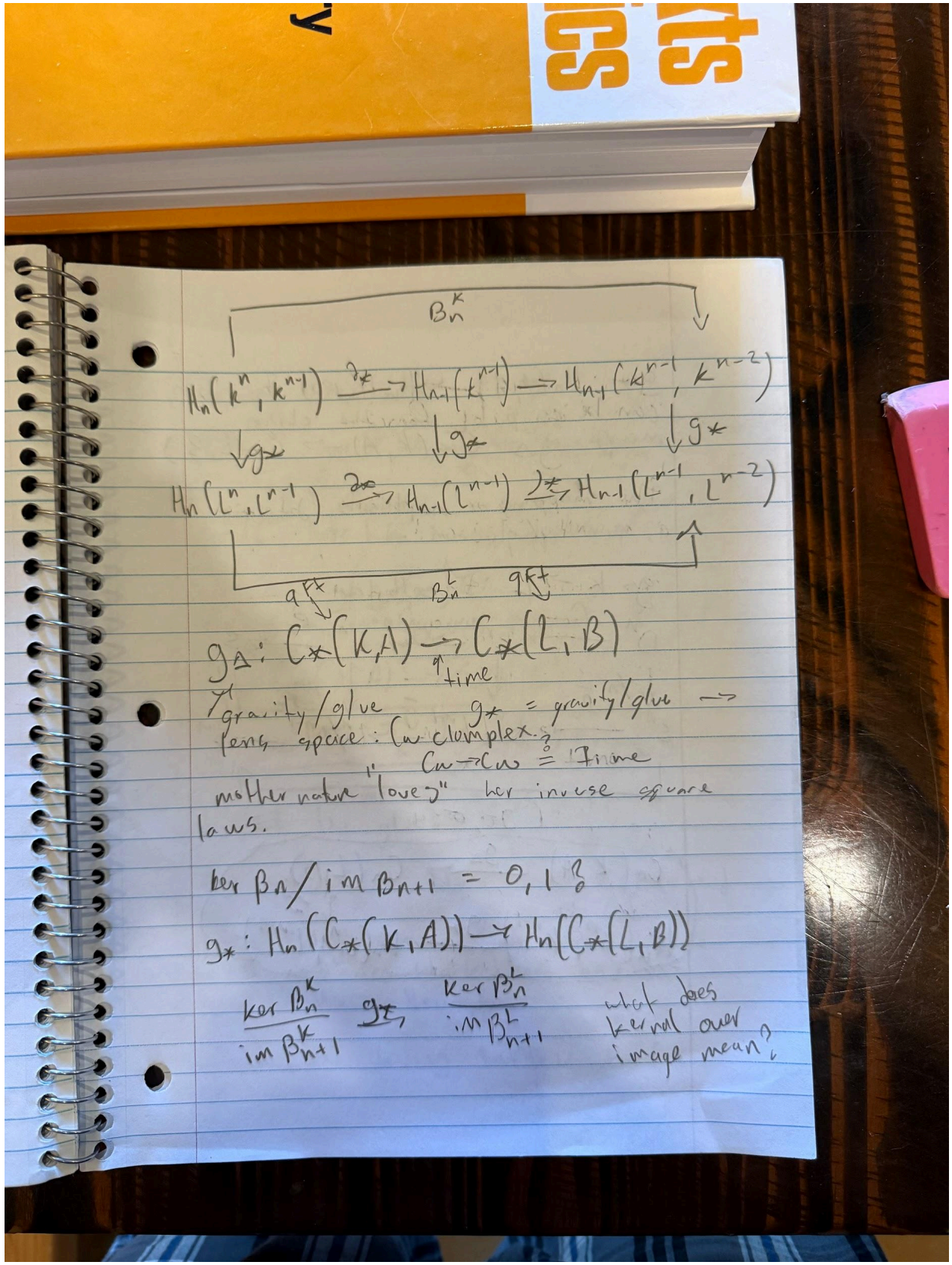
$$\boxed{g_\Delta(\sigma) = \sum_\tau \deg(g_{\tau,\sigma})\tau}$$

Gumming up time and space slices to explain the glue?

How space and time are attached

Because "deg" seems infinite the bottle neck produces black holes and 00's in other ~~theories~~. theiosts

mother nature hiding herself but i see her.



$g_\Delta : C_*(K, A) \to C_*(L, B)$

↑ time

gravity/glue — g_* = gravity/glue →

lens space : $\mathbb{C}w$ clumplex.?

$\mathbb{C}w \to \mathbb{C}w$ = Time

mother nature "loves" her inverse square laws.

$\ker \beta_n / \operatorname{im} B_{n+1} = 0, 1$?

$g_* : H_n(C_*(K, A)) \to H_n(C_*(L, B))$

$\frac{\ker B_n^K}{\operatorname{im} B_{n+1}^K} \xrightarrow{g_*} \frac{\ker B_n^L}{\operatorname{im} B_{n+1}^L}$

what does kernel over image mean?

$g_* : H_n(K,A) \to H_n(L,B)$
can be computed from the chain map $g_\Delta : C_\Delta(K,A) \to C_\Delta(L,B)$

The mappings or morphisms determine a geometry/ glue.

$g : K \to L$ is cellular

$$\begin{array}{ccccccc} D^n & \xrightarrow{f_\sigma} & K^n & \xrightarrow{g} & L^n & \xrightarrow{P_\tau} & S^n \\ \downarrow \gamma_n & & \downarrow & & \downarrow & & \| \\ S^n & \xrightarrow{\bar{f}_\sigma} & K^n/K^{n-1} & \xrightarrow{\bar{g}} & L^n/L^{n-1} & \xrightarrow{\bar{P}_\tau} & S^n \end{array}$$

$g_{\tau,\sigma}$

$$\begin{array}{ccc} C_n(K,A) & \xrightarrow{g_\Delta} & C_n(L,B) \\ \downarrow\uparrow & & \downarrow\uparrow \\ H_n(K^n, K^{n-1}) & \xrightarrow{g_*} & H_n(L^n, L^{n-1}) \end{array}$$

Time speed up at the beginning, = rapid expansion then flow time slows down. the high pressure and extremly high current means pressure out words and explosion.

Jos this map has degree 2 our neglect of "orientation" here means cannot depend on the sign, but any way $[a:\sigma] = \pm 2$

$\cdots \to 0 \to \mathbb{Z} \xrightarrow{\pm 2} \mathbb{Z} \xrightarrow{0} \mathbb{Z} \to 0 \to \cdots$

$H_2(P^2) = 0 \quad H_1(P^2) \cong \mathbb{Z}_2$ and $H_0(P^2) = \mathbb{Z}$

2 braid orientation neglection is neglecting? the quantization of the braids and quantization of gravity/glue? ingnoring push forward/pull back?

Hence it has degree 0, and similarly for p_b f ∂_σ.

$[a:\sigma] = 0$ and $[b:\sigma] = 0$ so that $\partial = 0$ in degree 1, and thus in all degrees.

glue = gravity with spin 2

$P_\sigma \wedge P_\tau : k^{(p)} \times k^{(q)} \to S^p \wedge S^q = S^{p+q}$

$C_*(K \times L)$ which is the free abelian group on the cells of $K \times L$ in terms of those on $C_*(K)$ and $C_*(L)$

Exploring why gravity is not a "abelian" theory or not like others

$g: \partial I^p \to S^{p-1}$

$p-1 \Rightarrow$ to get information about the space!

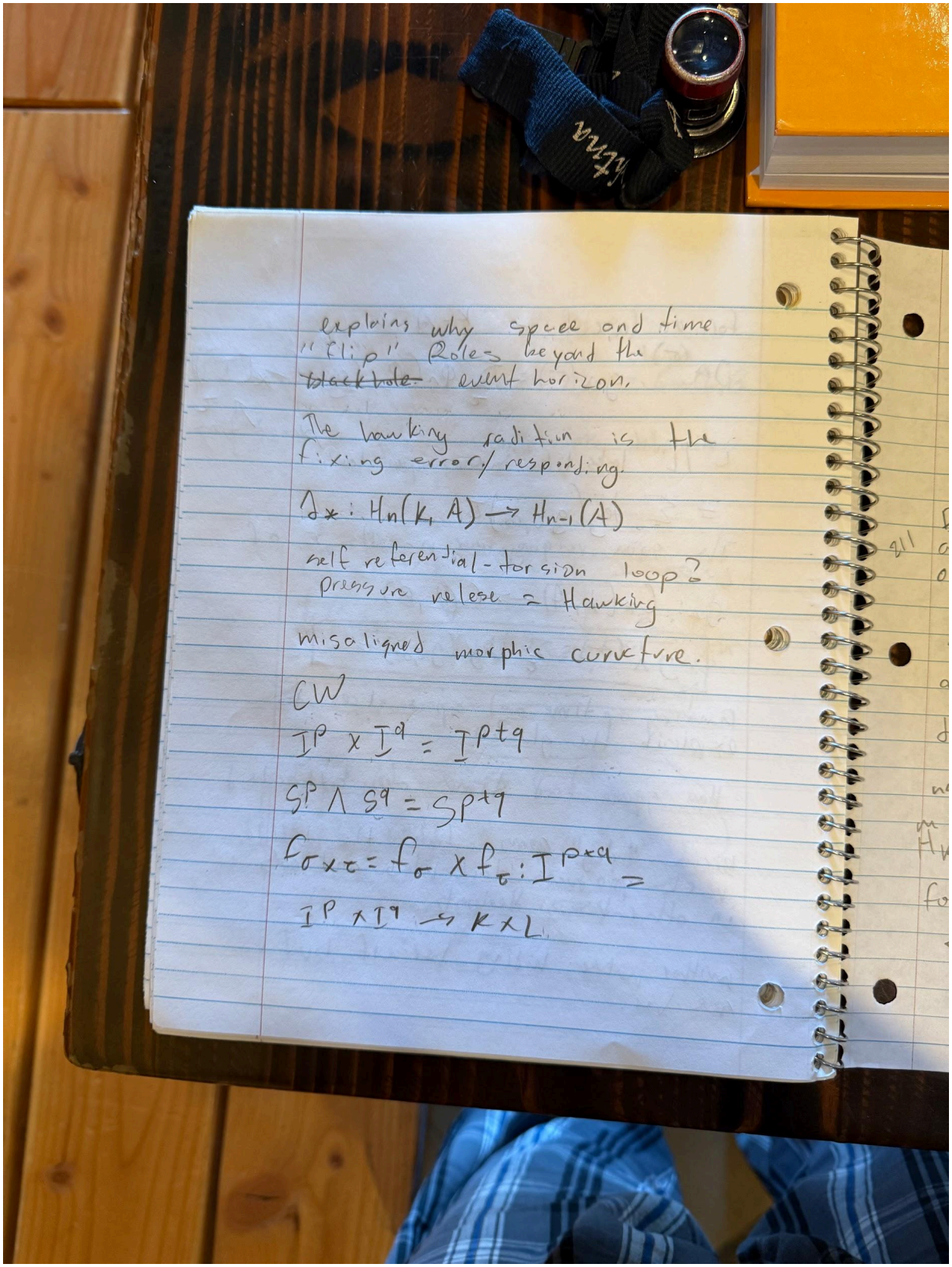
$\deg(g \wedge 1_{q^+} \wedge \gamma_q) = \deg g$

natural "suspension" → pressure or gravity.

$H_k(X) \xrightarrow{\cong} H_{k+1}(\Sigma X)$ why string theorists "need" extra dim

for pointed X

$\Sigma X \to X \wedge S^1$ → lens space / gravity



explains why space and time "flip" Roles beyond the ~~black hole~~ event horizon.

The hawking radition is the fixing error/responding.

$\partial_* : H_n(K, A) \to H_{n-1}(A)$

self referential - torsion loop?
pressure relese = Hawking

misaligned morphic curvature.

CW

$I^p \times I^q = I^{p+q}$

$S^p \wedge S^q = S^{p+q}$

$f_{\sigma \times \tau} = f_\sigma \times f_\tau : I^{p+q} =$

$I^p \times I^q \to K \times L$

$\tilde{H}_{k+1}(\Sigma X) \xrightarrow{\sim} \tilde{H}_{k+1}(X \wedge S^1)$

$S^q = S^1 \wedge \cdots \wedge S^1$ q times

natural homomorphism

$\phi : \tilde{H}_k(X) \to \tilde{H}_{k+q}(X \wedge S^q)$

which is an isomorphism when $X = S^k$ QFT ?

linear ? QFT.

make sure the lens space preserve orientation.

why gravity and QFT are different/"right"

HB group $\hookrightarrow$ $A/B \cong \mathbb{Z}_{n_1} \oplus \cdots \oplus \mathbb{Z}_{n_s} \oplus \mathbb{Z}^{r-s}$

"summing up" linear $v \in V$ $\langle 0 | \cdots | 0 \rangle$

$0 \to B \to A \to C \to 0$

$\operatorname{rank}(A) = \operatorname{rank} B + \operatorname{rank}(C)$

A space X is said to be finite type if $H_i(X)$ is finitely generated for each i. It is of bounded finite type if $H_i(X)$ is also zero for all but a finite number of i.

QFT is finite dimensional for each i. Bounded finite type if $H_i(X)$ is also zero

gravity bounces QFT with zero

$$e^{i\pi} + 1 = 0$$

quantum gravity!

π = curvature closed geometry, boundary,
i = quantum flow!

1 → identity (unite structure)

looks like a proper loop quantum gravity lol.