Disclosure Day

A short proof that we experience a simulation

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Headline structural readout and branch checksum.

$$G_{\rm geom} = \ell_\star^2, \qquad G_{\rm SI} = \frac{c^5}{4\pi^2\hbar\nu_{\rm Cs}^2}\varepsilon_{\rm Cs}^2,$$

$$\varepsilon_{\rm Cs}^{\rm cal} = 3.1139305134160128239010504341324260294966086930418766 \times 10^{-33},$$

$$G_{\rm checksum} = 6.674299995910528\ldots \times 10^{-11}\ {\rm m^3\,kg^{-1}\,s^{-2}}.$$

The structural result is $G_{\rm geom} = \ell_\star^2$. The printed SI decimal is source-predictive only when the clock-scale record has no gravity-calibrated dependency path. Appendix A records the CODATA comparison.

Closure-to-gravity derivation.

1. Claim boundary

This note proves the local OPH gravity readout from imported branch records in the OPH paper stack. The load-bearing local records are $\mathcal{R}_P$ and $\mathcal{R}_E$. $\mathcal{R}_P$ is the local pixel closure record. $\mathcal{R}_E$ is the edge-entropy and Einstein-branch record. $\mathcal{R}_N$ is the cosmic record-capacity closure record. Its role here is the downstream cosmological display. $\mathcal{R}_\gamma$ is the no-G clock-scale record, used to express the geometric gravity row in SI units.

The theorem proved here is the local gravity readout:

$$\boxed{\mathcal{R}_P + \mathcal{R}_E \Longrightarrow G_{\rm geom} = \ell_\star^2.}$$

The SI display is a separate unit-chart readout:

$$\mathcal{R}_\gamma \Longrightarrow G_{\rm SI} = \frac{c^5}{4\pi^2\hbar\nu_{\rm Cs}^2}\varepsilon_{\rm Cs}^2.$$

The global capacity record $\mathcal{R}_N$ closes the downstream cosmological term,

$$\Lambda_{\rm CRC} = \frac{3\pi}{N_\star \ell_\star^2} = \frac{3\pi c^3}{\hbar G_{\rm SI} N_\star}.$$

The structural theorem ends at $G_{\rm geom} = \ell_\star^2$. The numerical SI G row is source-predictive only when $\mathcal{R}_\gamma$ has a public dependency graph containing no measured G, no Planck area $\hbar G/c^3$, no measured Λ, and no equivalent gravity-calibrated scale. Without that record, the printed SI decimal is a calibration checksum.

2. The two OPH closures

OPH starts with zero constants. It starts with closure equations. The local pixel closure computes $P_\star$. The global screen-capacity closure computes $N_\star$:

$$P = \Gamma(P) = \varphi + \frac{\sqrt{\pi}}{A_T(P)}, \qquad N = \mathcal{C}(N).$$

Their meanings are concrete:

$$P_\star \quad \text{one local pixel}, \qquad N_\star \quad \text{the total closed-screen capacity}.$$

$P_\star$ says how much area and shared edge entropy one observer cell carries. $N_\star$ says how many record units fit on the whole closed screen.

These are self-readback equations. A trial value is inserted into the OPH construction. The constructed record system reads the same value back from inside the branch. A valid value is one where input and readout agree. For P, the trial value builds one local cell and its electromagnetic observation scale. For N, the trial value builds a closed screen with that many horizon record units. For the SI scale, the trial value builds the no-G clock bridge that compares the OPH area unit with the cesium clock.

The OPH method is a targeted fixed-point search from inside the experienced branch. The OPH universe is a closed mathematical readout structure whose observers, records, and branch values coexist in one object. Embedded observers meet record fragments of that branch. Those fragments give educated starting points for the search: the electromagnetic width is near $1/137$, the screen capacity is near 10^{122}, and laboratory clocks supply a scale chart.

Those observations identify the basin of the readback map. The closure equation supplies the exact value as the unique fixed point inside that basin. Observation supplies the address. Banach contraction supplies the number.

The proof obligation is direct: show that the OPH readback map sends the interval I into itself, contracts distances inside it, and has the quoted candidate as its fixed point. If these statements hold, every starting point in I lands at the same fixed point. Changing the approximate observation inside I changes only the starting point. The endpoint is fixed by the equation and uniqueness proof.

Repeatable experiment: optical pixel check

Alexander Osika's hardware check implements the same search-and-lock workflow with light. The body is a clear SLA resin torus with $R/r = \varphi$, twelve golden-angle ports, twelve bidirectional red 0805 LEDs, and an RP2040-Zero controller. For each trial P, the firmware computes the OPH gauge/heat-kernel residual, sends a pulse through the torus, reads the return through the same LEDs, and repeats. The check succeeds when the mathematical residual crosses zero at the same P where the optical response leaves the dark state and locks. In the reported April 20, 2026 run, the first four passes read 0; the fifth pass locked at 256 and held, matching the four-step contraction expectation.

What is the basin?

The basin is the allowed region of candidate values for one branch. Observed records identify which region of the mathematical structure our experience occupies. The contraction proves that this whole region has one fixed point. The exact value is that fixed point.

A closure equation selects its value as a fixed point. A fixed point is a number that reads back to itself under the rule that defines the branch. For a branch whose readback law is a contraction $F : I \to I$ on a complete metric interval,

$$F(I) \subseteq I, \qquad d(F(x), F(y)) \le q\, d(x, y), \qquad 0 \le q < 1,$$

Banach's theorem gives exactly one fixed point.

What is a Banach contraction?

Think of a rule that takes every allowed guess and moves it closer to one special value. If the rule always shrinks distances by a fixed factor $q < 1$, repeated readback has only one possible landing point. That landing point is the fixed point. In OPH, approximate observation selects the allowed region. The contraction proves the exact value inside it.

I is the allowed interval of candidate values. F is the OPH readback rule. d is a distance between two candidates. $q < 1$ means the rule pulls candidates closer together each time it is applied. Observation locates the branch interval; the contraction removes numerical freedom inside that interval. The readback loop has one stable value. A different value would fail to read back to itself.

The local pixel $P_\star$. $P_\star$ fixes one elementary observer cell. In a simulator it is the cell-area and edge-entropy normalization:

$$a_{\text{cell}} = P\ell_\star^2, \qquad \bar{\ell}_{\text{shared}} = P/4.$$

The trial P is sent through the local source map. That map produces the electromagnetic observation scale of the same cell, written

$$A_T(P) = \alpha_{\text{em}}^{-1}(0; P).$$

The local cell has two readings. The outer reading is the screen detuning above the self-similar balance point φ. The inner reading is the electromagnetic width $1/A_T(P)$ carried by that same cell. The fixed-point equation for one closed pixel is

$$P = \Gamma(P) = \varphi + \frac{\sqrt{\pi}}{A_T(P)}.$$

The branch contraction has a unique selected value. No other local pixel value solves this OPH readback problem:

$$P_\star = 1.6309682094039593\ldots.$$

Its meaning is simple: geometry and shared edge entropy name the same local observer cell.

The global capacity $N_\star$. $N_\star$ fixes the whole closed screen. It is the dimensionless total observer-facing record capacity. On the declared OPH cosmic record-capacity branch, N is computed by the readback equation

$$N = \mathcal{C}(N).$$

Here the trial N builds a closed OPH universe with a horizon record Hilbert space of size $\log\dim \mathcal{H}_{\partial,N} = N$. The set Ω_N^{sc} contains terminal screen normal forms that are repair-closed, observer-supporting, locally recovered-core closed, and whose own horizon record surface reads back capacity N. The expression $\log|\Omega_N^{\text{sc}}| - N$ counts self-closing normal forms per available screen Hilbert-space size. Equivalently, on the count-density presentation,

$$N_\star = \text{Rep}_{\text{mon}} \arg\max_N [\log|\Omega_N^{\text{sc}}| - N]$$

under the stated strict-concavity proof. Here Rep_{mon} means the monotone arithmetic representative: the canonical numeric representative of the maximizing branch. The construction is given in the Observers paper, cited as O1 in Appendix A. The selected display value is $N_\star \simeq 3.31 \times 10^{122}$. Its meaning is simple: the closed screen has one self-consistent capacity. No other capacity on this branch gives the same closed-screen readback. Once the scale readout is supplied, this same capacity gives the global curvature product

$$\Lambda_\star \ell_\star^2 = \frac{3\pi}{N_\star}.$$

What is the representative rule?

The maximization can name a branch before it names a single printed number. Rep_{mon} picks the canonical monotone arithmetic representative of that maximizing branch. This is separate from Minimal Admissible Realization, the MAR selector used in the Standard Model branch. The detailed capacity construction lives in the Observers paper, listed as O1 in Appendix A.

The two fixed points determine dimensionless screen geometry:

$$P_\star = \frac{a_{\rm cell}}{\ell_\star^2}, \qquad N_\star = \frac{3\pi}{\Lambda_\star \ell_\star^2},$$

$$\Lambda_\star \ell_\star^2 = \frac{3\pi}{N_\star}, \qquad \Lambda_\star a_{\rm cell} = \frac{3\pi P_\star}{N_\star}.$$

3. Local gravity readout

On the imported edge-entropy/Einstein branch, the local Newton coupling is the coefficient that converts cell area to edge entropy:

$$G_{\rm geom} = \frac{a_{\rm cell}}{4\bar{\ell}_{\rm shared}}.$$

On the selected local pixel branch,

$$a_{\rm cell} = P_\star \ell_\star^2, \qquad \bar{\ell}_{\rm shared} = \frac{P_\star}{4}.$$

Therefore

$$G_{\rm geom} = \frac{P_\star \ell_\star^2}{4(P_\star/4)} = \ell_\star^2.$$

The numerical value of $P_\star$ cancels. This cancellation is the local cell identification doing its job: $P_\star$ ties the cell-area reading to the shared-edge-entropy reading, while $\ell_\star^2$ carries the area scale.

The global capacity $N_\star$ closes the cosmological term downstream. The local Newton row has this dependency:

$$(P_\star, \mathcal{R}_E) \Longrightarrow G_{\rm geom} = \ell_\star^2, \qquad \mathcal{R}_\gamma \Longrightarrow \ell_\star = \frac{\gamma_\star c}{\nu_{\rm Cs}}.$$

4. Adding SI units

$P_\star$ and $N_\star$ are dimensionless. They fix the local pixel ratio and the global screen capacity. SI units require a scale readout. OPH writes that readout as the no-G cesium clock gap $\varepsilon_{\rm Cs}$, with

$$\gamma_\star = \frac{\varepsilon_{\rm Cs}}{2\pi}, \qquad \gamma_\star := \frac{\ell_\star \nu_{\rm Cs}}{c}.$$

$\nu_{\rm Cs} = 9\,192\,631\,770\ {\rm s}^{-1}$ is the SI cesium frequency. $\gamma_\star$ compares the OPH length $\ell_\star$ with the distance light travels during one cesium-clock tick. Its dependency graph contains the unit chart, with no gravity measurement in it. The input list contains no measured G, no $\hbar G/c^3$, no observed Λ, and no $3\pi c^3/(\hbar G)$. This scale readout follows the same basin logic: observation locates the branch, and the no-G readback map supplies the selected fixed point.

The trial scale value is a dimensionless clock ratio, not a measured Newton constant. It asks how large the OPH area unit is when expressed through a source-only atomic clock bridge. The bridge may use the SI definitions of c, $\hbar$, and the cesium transition frequency because those define the human unit chart. It must emit the clock gap without using G, Planck area, or a cosmological formula containing G. Once that no-G clock gap is emitted, the conversion to $G_{\rm SI}$ is algebra.

What does no-G mean here?

The scale readout must be obtained without using Newton's constant in disguise. It may use the SI unit chart, such as c, $\hbar$, and the cesium clock frequency. It may not use measured G, Planck area $\hbar G/c^3$, or a cosmological expression containing G. That condition is the non-circularity test for the gravity number.

Hierarchy problem in OPH

The usual hierarchy problem treats the weak scale as a fragile scalar input near the ultraviolet cutoff. OPH uses the local pixel branch. The cell scale is $E_{\rm cell}$, the unified-coupling record $\mathcal{R}_U$ emits $\alpha_U(P_\star)$, and the weak scale is read by

$$\frac{v}{E_{\rm cell}} = \exp\left[-\frac{2\pi}{4\alpha_U(P_\star)}\right].$$

The Higgs mass is fixed by the branch equations recorded in the particle paper, cited as O5 in Appendix A. A free bare scalar parameter is absent from this proof object. The detailed hierarchy and Higgs/top records live in O1 and O5.

The hierarchy construction enters this note through the public *Observers Are All You Need* paper, cited as O1 in Appendix A. The imported clock-scale object is the source bridge

$$\mathcal{R}_\gamma = \mathcal{R}_U + \mathcal{R}_\alpha + \mathcal{R}_e^{\rm abs} + \mathcal{R}_{\rm QCD/nuc}^{\rm 133Cs} + \mathcal{R}_{\rm atom}^{\rm 133Cs}.$$

$\mathcal{R}_U$ is the unified-coupling and weak-scale source record. $\mathcal{R}_\alpha$ is the electromagnetic endpoint record. $\mathcal{R}_e^{\rm abs}$ is the absolute electron-mass record. $\mathcal{R}_{\rm QCD/nuc}^{\rm 133Cs}$ is the source-side cesium nuclear record. $\mathcal{R}_{\rm atom}^{\rm 133Cs}$ is the cesium hyperfine spectral record. The Observers paper carries the source equations, interval requirements, derivative bounds, and dependency graph. This note uses only the resulting rule: if the full graph contains no measured G, no Planck area, no measured Λ, no measured electroweak calibration, and no equivalent gravity-calibrated scale, then the emitted $\varepsilon_{\rm Cs}$ is a no-G scale readout. Otherwise the printed SI gravity decimal is a calibration checksum.

Hadronic blocker

The source-only SI gravity number meets the same blocker as the public fine-structure endpoint. The hadronic/same-scheme endpoint payload and the cesium QCD/nuclear packet are fixed for the displayed checksum. They are not used in the local proof $\mathcal{R}_P + \mathcal{R}_E \Rightarrow G_{\rm geom} = \ell_\star^2$. A source-only SI prediction requires a Ward-projected QCD/nuclear spectral record from a dedicated OPH optical-compute backend, or an equivalent nonperturbative backend with manifest provenance and systematics.

The scale record has the form

$$\mathcal{R}_\gamma = (I_\gamma, S_\gamma, d_\gamma, q_\gamma, \gamma_0, r_\gamma, \mathcal{G}_\gamma),$$

where I_γ is the branch interval, S_γ is the source readback map, d_γ is the metric, $q_\gamma < 1$ is the contraction constant, γ_0 is the displayed candidate, $r_\gamma = d_\gamma(S_\gamma(\gamma_0), \gamma_0)$ is the residual, and $\mathcal{G}_\gamma$ is the dependency graph. The record must satisfy

$$S_\gamma(I_\gamma) \subseteq I_\gamma, \qquad d_\gamma(S_\gamma(x), S_\gamma(y)) \le q_\gamma d_\gamma(x, y).$$

The dependency graph must contain no path from

$$G_{\rm exp}, \qquad \ell_P^2 = \frac{\hbar G}{c^3}, \qquad \Lambda_{\rm exp}, \qquad B_G = \frac{3\pi c^3}{\hbar G}$$

to γ_0 or $\varepsilon_{\rm Cs}$. Approximate observation may locate the branch interval. It may not define S_γ, tune its coefficients, choose among multiple roots inside the interval, alter the residual, or update $\mathcal{G}_\gamma$ after comparison with measured G.

The selected branch readout is

$$\varepsilon_{\rm Cs} = 3.1139305134160128239010504341324260294966086930418 76 \times 10^{-33},$$

which gives

$$\gamma_\star = 4.955974336548419463665778243369643187948431970 5825 \times 10^{-34}.$$

Hence

$$G_{\rm geom} = \ell_\star^2 = \left(\frac{\gamma_\star c}{\nu_{\rm Cs}}\right)^2 = \frac{c^2}{4\pi^2 \nu_{\rm Cs}^2}\,\varepsilon_{\rm Cs}^2.$$

The SI display of a geometric length-squared coupling is

$$G_{\rm SI} = \frac{c^3}{\hbar} G_{\rm geom}.$$

Therefore

$$G_{\rm SI} = \frac{c^5}{4\pi^2 \hbar \nu_{\rm Cs}^2}\,\varepsilon_{\rm Cs}^2.$$

Substitution gives the selected-branch SI readout

$$G_{\rm OPH} = 6.674299995910528\ldots \times 10^{-11}\ \mathrm{m^3\,kg^{-1}\,s^{-2}}.$$

Comparison with CODATA is listed in Appendix A and excluded from the upstream derivation.

5. Supporting OPH readouts

The table collects quantities used or predicted by the same OPH closure architecture. Entries include direct numerical comparisons, exact definitions, structural hits, public upper limits, and values with no public measurement. Each row keeps its measurement type visible without blending unlike evidence types into one number.

Readout	Value	Meaning
$P_\star$	$1.6309682094039593\ldots$	exact local pixel fixed point
$N_\star$	$\simeq 3.31 \times 10^{122}$	global closed-screen capacity fixed point
$\varepsilon_{\rm Cs}, \gamma_\star$	$\varepsilon_{\rm Cs}^{\rm cal} = 3.11393051342\ldots \times 10^{-33}$ $\gamma_\star = 4.95597433655\ldots \times 10^{-34}$	dimensionless clock bridge; source-predictive only after the full $\mathcal{R}_\gamma$ chain
$\ell_\star^2$	$2.61228030237\ldots \times 10^{-70}\mathrm{m}^2$	OPH area quantum
$a_{\rm cell}$	$4.26054612722\ldots \times 10^{-70}\mathrm{m}^2$	physical area of one screen pixel
$\bar{\ell}_{\rm shared}$	$0.407742052350989825\ldots$	shared edge entropy per local cell
$G_{\rm geom}$	$\ell_\star^2$	geometric Newton coupling
$G_{\rm SI}$	$6.674299995910528 \times 10^{-11}\mathrm{m^3kg^{-1}s^{-2}}$	SI branch checksum; source-predictive only after the full clock chain
$\Lambda_{\rm CRC}$	$\dfrac{3\pi}{G_{\rm geom} N_\star}$	downstream de Sitter display

Appendix A. OPH-predicted values

OPH is a theory of everything. The Newton row is the compact gravity example treated in this note. The wider OPH paper stack uses the same closure architecture for spacetime, gauge structure, particles, and cosmology. Some rows are exact structural readouts. Some rows are numerical values that can be compared with public measurements. Some particle and hadron rows require source-only QCD or nuclear computations that are expensive rather than conceptually free variables.

Appendix A records the surrounding OPH prediction ledger: local pixel, total screen capacity, support-visible spacetime branch, realized gauge branch, and declared quantitative particle branches. The table separates direct measurements, public limits, definitions, and values with no public measurement.

A numerical σ is shown only when the cited public source gives a central value and a one-standard-deviation uncertainty. Exact definitions and rounded matches are marked as exact hits. Limit rows, structural rows, and non-Gaussian global-fit profiles keep their measurement type. The table avoids fake scalar sigma. Rows whose OPH value carries more digits than public measurement permits are sharper OPH readouts if the branch derivation is accepted.

Lane	OPH prediction	Measurement or public reference	Residual	Source
Local pixel	$P_\star = 1.6309682094039593\ldots$	No direct laboratory measurement. Local cell-area and edge-entropy fixed point required by a finite OPH screen.	n/a	O3,O5
Local cell entropy	$\bar{\ell}_{\text{shared}} = P_\star/4 =$ $0.407742052350989825\ldots$	No direct laboratory measurement. It is the entropy weight assigned to one observer cell by the same fixed point that fixes $P_\star$.	n/a	O3,O4
Global capacity	$N_\star \simeq 3.31 \times 10^{122}$	No direct count measurement. Cosmological comparison uses de Sitter capacity after the scale branch is supplied.	n/a	O1,O4
Clock bridge proof obligation	$\varepsilon_{\text{Cs}}^{\text{cal}} = 3.11393051342\ldots \times 10^{-33}$ $\gamma_\star = 4.95597433655\ldots \times 10^{-34}$ $B_\star = 3.60787391468\ldots \times 10^{70}\text{m}^{-2}$	The printed decimal is source-predictive only if the full $\mathcal{R}_U + \mathcal{R}_\alpha + \mathcal{R}_e^{\text{abs}} + \mathcal{R}_{\text{QCD/nuc}}^{133\text{Cs}} + \mathcal{R}_{\text{atom}}^{133\text{Cs}}$ chain emits it without a gravity-calibrated parent.	source-emitted required	O4
Area quantum and pixel area	$\ell_\star^2 = 2.61228030237\ldots \times 10^{-70}\text{m}^2$ $a_{\text{cell}} = 4.26054612722\ldots \times 10^{-70}\text{m}^2$	No direct public measurement of an OPH screen cell. The inferred area quantum is tested through G_{SI}.	n/a	O3,O4
Newton coupling	$G_{\text{geom}} = \ell_\star^2$ $G_{\text{SI}} = 6.674299995910528 \times 10^{-11}$	Comparison only. $G = 6.67430(15) \times 10^{-11}\text{m}^3\,\text{kg}^{-1}\,\text{s}^{-2}$. This CODATA row is excluded upstream by the no-G criterion in Section 4.	source-gated checksum unless $\mathcal{R}_\gamma$ is source-emitted	S1,O3,O4
Cosmological constant	$\Lambda_{\text{CRC}} \approx 1.09 \times 10^{-52}\text{m}^{-2}$	Planck 2018 gives the late-universe ΛCDM parameter surface; the rounded OPH value agrees at displayed order.	exact hit at shown precision	S5,O1,O4
Static-patch rate	$H_{\text{dS}} \approx 55.759940256\ \text{km}\,\text{s}^{-1}\,\text{Mpc}^{-1}$	De Sitter static-patch display, separate from the fitted local Hubble constant.	separate from fitted H_0	O1,O4
Hubble benchmark	$H_0 = 67.4\ \text{km}\,\text{s}^{-1}\,\text{Mpc}^{-1}$ in compressed diagnostics	Planck 2018 reports $H_0 = 67.4 \pm 0.5\ \text{km}\,\text{s}^{-1}\,\text{Mpc}^{-1}$. This row is a benchmark input in the compressed comparison.	0σ	S5,O1,O4
Lorentz group	$\text{Conf}^+(S^2) \cong \text{SO}^+(3,1)$	Structural prediction. Direct scalar sigma is the wrong statistic; the comparison is the Lorentz-kinematics branch.	n/a	O4
Causal speed	$c = 299792458\ \text{m}\,\text{s}^{-1}$	Exact SI definition. Display convention for the Lorentz speed.	exact hit by definition	S3,O4
Einstein branch	Jacobson-type local Einstein equation	Structural prediction. The recovered local field equation is the Einstein equation branch; later tests are GR/weak-field/null-energy comparisons rather than one scalar value.	exact structural hit	O4
Gauge quotient	$\text{SU}(3)_c \times \text{SU}(2)_L \times \text{U}(1)_Y/\mathbb{Z}_6$	Matches the observed Standard Model gauge quotient. No one-number sigma.	exact structural hit	S6,O4,O5
Hypercharge, color, generations	one-generation hypercharge lattice $N_c = 3, \quad N_g = 3$	Matches observed Standard Model charge and family structure. No one-number sigma.	exact structural hit	S6,O4,O5
Massless protected carriers	$m_\gamma = 0$ $m_g = 0$ $m_{\text{grav}} = 0$	Photon and gluon masslessness are gauge-branch structural hits. Graviton masslessness belongs to the diffeomorphism/Lorentz gravity branch. Direct measurements give public upper limits; exact mass measurements are absent.	structural hits	S6,O4,O5
Gauge proton decay	$\tau_p^{(\text{gauge})} = \infty$	Public searches give lower limits on proton decay channels. The OPH gauge row predicts no simple-GUT gauge boson decay mode.	n/a	S6,O4,O5
Fine-structure source trunk	$\alpha_{\text{source}}^{-1} = 136.994835164621649\ldots$	No direct public measurement. It is the source calculation before the declared hadronic/same-scheme endpoint payload, which is fixed for the displayed endpoint row.	n/a	O5
Fine-structure endpoint	$\alpha^{-1}(0) = 137.035999177(21)$ $\alpha(0) = 0.00729735256433\ldots$	CODATA gives $\alpha^{-1} = 137.035999177(21)$. The public endpoint stays outside the gravity proof. Its hadronic/same-scheme payload is fixed rather than source-emitted in this compact note.	0σ	S2,O5
Electroweak source	$\alpha_2(m_Z) = 0.03377843630219015$ $\alpha_Y(m_Z) = 0.010131601067241624$	Electroweak-fit comparison row. A scalar sigma depends on scheme and fit covariances, so this table leaves it unquoted.	n/a	S6,O5
Electroweak scale	$v = 246.76711732749683$ GeV	Derived from the electroweak branch and displayed in the particle surface. Direct comparison depends on G_F convention and loop scheme.	n/a	S6,O5
W/Z validation pair	$M_W = 80.377$ GeV $M_Z = 91.18797809193725$ GeV	PDG 2024 gives $M_W = 80.3692 \pm 0.0133$ GeV and $M_Z = 91.1876 \pm 0.0021$ GeV.	0.59σ 0.18σ	S6,O5
Higgs/top branch	$m_H = 125.1995304097179$ GeV $m_t = 172.35235532883115$ GeV	PDG 2024 gives $m_H = 125.20 \pm 0.11$ GeV and direct $m_t = 172.57 \pm 0.29$ GeV.	-0.004σ -0.75σ	S6,S7,O5
Charged leptons	$m_e = 0.00051099895$ $m_\mu = 0.1056583755$ GeV $m_\tau = 1.7769324651340912$	PDG lepton summary gives the displayed central values. The tau residual is 0.03σ; e, μ match at displayed precision.	$\leq 0.03\sigma$	S8,O5

Lane	OPH prediction	Measurement or public reference	Residual	Source
Quark sextet	$u = 0.00216, \quad d = 0.00470$ $s = 0.0935, \quad c = 1.273$ $b = 4.183$ $t = 172.35235532883115$ GeV	PDG quark summary gives the displayed light/heavy quark central values. The top comparison is listed in the Higgs/top row.	0σ at shown precision	S7,O5
Neutrino masses	0.017454720257976796 0.019481987935919015 eV 0.05307522145074924	No public measurement exists for the individual absolute neutrino masses. KATRIN gives a direct upper limit on the effective electron-neutrino mass.	n/a	S10,O5
Neutrino sum	$\sum m_\nu = 0.09001192964464505$ eV	Planck 2018 plus BAO gives $\sum m_\nu < 0.12$ eV at 95% CL. OPH lies below the public upper limit.	below limit	S5,S11,O5
Neutrino mixing display	$\theta_{12} = 34.2259^\circ,\ \theta_{23} = 49.7228^\circ$ $\theta_{13} = 8.68636^\circ,\ \delta = 305.581^\circ$	NuFIT 6.0 gives global-fit profiles. The profiles are non-Gaussian and ordering-dependent, so this table leaves scalar sigma unquoted.	n/a	S9,O5
Majorana phases	$\alpha_{21} = 153.618518^\circ$ $\alpha_{31} = 257.003241^\circ$	No public measurement exists for the Majorana phases. They require neutrinoless double-beta or equivalent absolute-phase information.	n/a	S11,O5
Compressed matter budget	$\Omega_{\Lambda,\mathrm{OPH}} = 0.684423332$ $\Omega_A = 0.264114401$ $\Omega_m = 0.315484968$	Planck 2018 gives $\Omega_m = 0.315 \pm 0.007$. Flat ΛCDM gives $\Omega_\Lambda \simeq 0.685 \pm 0.007$.	$\Omega_m : 0.07\sigma$ $\Omega_\Lambda : -0.08\sigma$	S5,O1,O4

Measurement source keys.

S1: NIST CODATA 2022 G.

S2: NIST CODATA 2022 α^{-1}.

S3: NIST CODATA c, exact.

S4: NIST CODATA $\hbar$, exact. Used in the arithmetic check.

S5: Planck 2018 cosmological parameters.

S6: PDG 2024 gauge and Higgs summary.

S7: PDG 2024 quark summary.

S8: PDG 2024 lepton summary.

S9: NuFIT 6.0 oscillation fit.

S10: KATRIN 2025 direct neutrino-mass limit.

S11: PDG 2024 neutrino-mass review.

OPH paper keys.

O1: Observers Are All You Need.

O2: Reality as Consensus Protocol.

O3: Screen Microphysics and Observer Synchronization.

O4: Recovering Relativity and Standard Model Structure from Observer Overlap Consistency.

O5: Deriving the Particle Zoo from Observer Consistency.

For model-assisted review

This note is a compact endpoint of the OPH paper stack. It should be read with the release bundle, especially the synthesis paper *Observers Are All You Need*. Use the public artifacts: GitHub releases, the OPH book, and learn.floatingpragma.io. A technical answer that treats this PDF in isolation lacks the branch records, proof dependencies, and caveats required for a reliable response. The OPH position presented here is that the imported branch records close the mathematical proof surface, and that the optical hardware experiment described in the text is an empirical confirmation of the local pixel fixed point. Some hadronic, QCD/nuclear, and same-scheme endpoint payloads are fixed from measurement because the source-side QCD simulations are not part of this release bundle. The OPH plan is to close those payload gaps with dedicated optical compute or an equivalent nonperturbative backend.