

SGTOE Track-2 v1.3

Rev32.5-synchronized consolidated paper series

Tom O’Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: **CONTESTED**, 3/8 retained, A1566 lane-adjudicated and PI ruling pending.

Contents

Unit	Title and role
Guide	Rev32.5 source basis, A1566 hold, comparator-ID ledger, ten-item delta, release validation, and readiness
A	Auditable exceptional-Jordan/ $E_{7(7)}$ substrate and Route-B theorem carry-forward
B	Finite-census gauge obstruction and loaded one-generation functor
C	Loaded exceptional cubic and selector-production carry-forward
D	Registered phenomenology, current comparators, neutrino two-reading audit, AX6 _{pol} , and observation premises
E	Nuclear protocol plus scoped annular negative, packing reopen class, loaded isospin, and unpriced neutron-proton row
F	Cartan/OMOS/clock, Roman semantic split, and Rev32.5 six-face carrier arc
M	Suite-wide 112-row claim manifest at minimum 9-point core-table type

Controlling reading order

1. Read the Guide’s source, hold, comparator, and controlled-grammar sections first.
2. Use Paper D and the claim manifest for row-level status, evidence state, source locator, and supersession.
3. Read Paper E’s v1.3 addendum before treating the retained nuclear body as current on the annular/isospin rows.
4. Read Technical Appendix F’s v1.3 addendum before citing any response amplitude, basepoint, or carrier-face statement.
5. Treat θ_{23} as CONTESTED in v1.3. The lane ruling is recorded but not installed pending PI adjudication.

Frozen-parent gate

The v1.2.1 primary remains byte-frozen at SHA-256 13a393a2644cbe76d0d3ffcde753112c01d486b0cfac3bb1003fda9bf1bbe2b6. The v1.3 primary is a new artifact with its own hash. Earlier v1.1 and v1.2 primaries remain frozen references in the source/reproduction part.

Release contract

Version and source	
Every generated release file self-labels v1.3 . The scientific source of truth is the sealed Rev32.5_S300 notebook, PDF SHA-256 a312e4e267c8d696f2ca1f0b65ff80c6f39f8ff3649866f388f64a36bba24434. Retained body pages are used only where the source ceiling remains unchanged; v1.3 overlays the current source basis, addenda, evidence contract, headers, footers, and row registry.	
Invariant posture	Controlling statement
Definition A	Claim language may not outrun the weakest dependency or physical attachment.
Standing fences	Alpha and compact colour remain fenced. The engine and kernel remain untouched. No engine value, Track-1 tier, or public observable moves.
Mathematical taxonomy	Exactly one of Proved, Certified, Structural, Input, Historical.
Physical attachment	Exactly one of Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, External-input; N/A is a non-physical sentinel.
Evidence taxonomy	Exactly one of analytic-in-text, source-certificate-shipped, source-certificate-not-shipped, external-source, registry-only, open/no-artifact.
A1566 hold	Sealed <code>CONTESTED</code> state and 3/8 tally retained pending PI ruling.
Response/basepoint	$ \lambda\mu = 1$ is declared; the basepoint is a placeholder; no Π_{full} or CKM construction follows.
Activation gate	Every externally active Proved or Certified row needs a complete analytic proof or a content-addressed public artifact plus an independent verifier.

Files emitted alongside this PDF

Individual unit PDFs; 112-row claim manifest CSV/JSON/PDF; evidence-gap registries; v1.3 revision note and changelog; source-provenance and readiness statements; exact Rev32.5 TeX; stable comparator-ID sidecar; comparator and locator audits; proof-artifact resolver; manifest validator with mutation controls; negative-grep and PDF-QA reports; two fresh build receipts; and self-excluding manifests for the publication and source/reproduction packages.

Suite Guide

Rev32.5 synchronization, comparator-ledger repair, carrier-arc fold, and
reproducible release contract

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Executive statement

Track-2 v1.3 is a new publication-layer artifact on the sealed Rev32.5_S300 notebook basis. It rolls forward every v1.2.1 ceiling and adds only the changes already present in the sealed notebook: current comparators with stable source-ledger IDs; the ladder/interface ordering condition; the R_1/R_2 neutrino two-reading audit; the $AX6_{\text{pol}}/\text{Det}^2$ naming split; scoped nuclear negatives and loaded isospin; the declared grade-four response premise; the declared basepoint placeholder; the six-face carrier ledger; and the source-ledger/resolver apparatus. The engine, kernel, Track-1 tiers, and public observable values do not move.

A1566 hold – binding for v1.3

The sealed source marks the θ_{23} provenance as **CONTESTED** and retains the 3/8 tally. A1566 lane-adjudicated the physical θ_{23} row and dependent $|V_{cb}|$ downward, but the PI ruling is still pending. This release mirrors the seal: **CONTESTED**, 3/8 retained, and a dated registry note states “adjudicated A1566 (lane), PI ruling pending; v1.3.1 will carry the ruling.” No value moves and no polished-series ruling is pre-empted.

Canonical current strings

- **CKM:** the CKM first row is Loaded; $|V_{cb}|$ is Structural at the sealed v1.3 hold; δ_{CKM} is Coincidence-class.
- **Ordering:** normal ordering is assumed; the physical readout is additionally conditional on the Structural R_d ladder and on the undeclared ladder-to-propagation-eigenstate interface.
- **Weak-angle naming:** $AX6_{\text{pol}}$ is the polarization postulate; the degree-six $\cos(6\psi) = 1/2$ construction is the distinct, retired Det^2 object.
- **Nuclear:** direct connected-Markov and perturbative annular repair are closed only in their tested class; packing/coordination is the surviving reopen class; isospin is Loaded; $m_n - m_p$ is Unpriced.
- **Observation:** $|\lambda\mu| = 1$ is a declared premise and the basepoint is a declared placeholder; neither constructs Π_{full} or CKM.

1 Source basis and release boundary

The source of truth is the sealed 380-page Rev32.5 suite, PDF SHA-256

a312e4e267c8d696f2ca1f0b65ff80c6f39f8ff3649866f388f64a36bba24434.

The sealed release archive has SHA-256

e6b72cc657bae9fc14aca8ce99cbe906e467b4d93adcb30f0461aef9f07b505e.

The thirty-three exact Rev32.5 source files are shipped unchanged in PART2. Every comparator is cited by the S302 sidecar ID **SL-01**...**SL-30**, keyed by quantity, scheme/scale, and edition. The frozen source ledger remains the basis of record; six malformed minus exponents are corrected only through the explicit S302 sidecar and are queued for the next Track-1 fold.

2 Comparator ledger and one rounding convention

Object	Framework value	Comparator ID	v1.3 reading
$ V_{us} $, exact frame-work angle	0.225247	SL-11	+1.11 σ against 0.22431 ± 0.00085 . This is the canonical framework-angle value.
$ V_{us} $, measured-angle diagnostic	0.22687	SL-11	+3.01 σ . Diagnostic only; it does not alter the exact block weight.
$ V_{cb} $	0.041996	SL-13	+1.00 σ against 0.0407 ± 0.0013 ; tier subject to the A1566 hold above.

Object	Framework value	Comparator ID	v1.3 reading
$ V_{ub} $	0.003862	SL-12	-0.17σ against 0.00389 ± 0.00016 ; inherits first-row loading.
$ V_{ud} $	unitarity readout	SL-14	$+1.94\sigma$ against 0.97367 ± 0.00032 ; first-row loading applies.
δ_{CKM} , global	68.1297°	SL-19	$+1.41\sigma$ against $66.12^\circ \pm 1.43^\circ$. Coincidence-class.
δ_{CKM} , direct	68.1297°	SL-20	$+0.64\sigma$ against $66.4_{-2.8}^{+2.7}$. Distinct comparator object.

The older 0.22526 , 1.20σ , and 3.21σ strings are superseded as current readouts. Rounded display angles may still generate the older final digits, but v1.3 uses one exact-framework convention in its live tables.

Rev32.5 ledger defect, house-confirmed S302

Six source-ledger minus fields lost the exponent sign: SL-01, SL-02, SL-03, SL-07, SL-08, and SL-10. v1.3 cites the corrected S302 sidecar values. The only one printed with an uncertainty in the Rev32.5 TeX is SL-10, and that printed value is already correct. Track-2 v1.2.1 did not consume any of the six malformed fields: its CKM rows used other IDs, and its neutrino rows were carried from printed source values rather than this new ledger.

3 Mixing and neutrino synchronization

3.1 Ordering and interface

The canonical dependency sentence is:

Normal ordering is assumed; the row is additionally conditional on the Structural R_d ladder and on the undeclared ladder-to-propagation-eigenstate interface.

This sentence governs the solar and δ_{CP} physical readouts and is repeated where a compact table would otherwise hide the dependency.

3.2 Two readings of the neutrino ratio family

The $d = 1$ literal eigenvalue reading gives 0.27639 for $\Delta m_{21}^2/\Delta m_{31}^2$ and is the genuinely falsified row. The suite's selected $d(\nu) = 2$ rung gives

$$R_2 = 0.17082, \quad R_2^2 = 0.02918,$$

which is 1.44 – 1.79σ below the $m_1 = 0$ normal-ordering floor. It is a fixed below-floor edge target, printed as a tension, not a mass relation and not a hit. The assignment $d(\nu) = 2$ is post-hoc/selected, has a 10.9 – 13.9% local-band look-elsewhere rate, and receives no blind credit. $\Sigma m_\nu = 58.79$ meV and $m_\beta = 8.74$ meV are boundary corollaries of $m_1 = 0$, not consequences of R_2 .

3.3 AX6 naming

AX6_{pol} is the independent polarization postulate

$$\Lambda_\star = 3P/Q(Y) = 6\phi - 1,$$

whose registered readout gives $\sin^2 \theta_W = \phi^{-3}$. The degree-six condition $\cos(6\psi) = 1/2$ with its 50° branch is the distinct Det^2 object, retired as a selector of AX6_{pol} . A667's Galois argument applies only to the Det^2 object. The identity proves the readout once AX6_{pol} is assumed; it does not derive or select the postulate.

4 Paper E synchronization

Paper E now states the tested class exactly. The connected Markov second moment is non-negative while the required six-to-seven-cell correction is negative, and the full-twist identity prevents exact switch-off at later rungs. Thus the direct connected-Markov and perturbative annular attachments are closed negative in the tested class. The surviving reopen class is packing/coordination of six to seven cells. Charge signs and counts remain the strong ledger; magnitudes remain open. The fixed- Z isospin coefficient is selected rather than derived, and the registered $e_7 \mapsto -e_7$ operation is a $\mathbb{Z}_2$ parity, not a derived $SU(2)$. The neutron-proton splitting 1.2933 MeV is unpriced because no energy is attached to that flip.

5 Technical Appendix F synchronization

5.1 Six-face carrier arc

The canonical carrier ledger has six distinct states: local carrier/polarization; a face-2 statement restricted to the locked thirty-row universe; shell-exchange torsor freedom; a covariant odd response class; a rank-three/relative-rank-two MOS quotient without microscopic support restoration; and a still-open output gate. The bounds $|\lambda| \leq \sqrt{2}$ and $|\mu| \leq 1$ imply $|\lambda\mu| \leq \sqrt{2}$. The forty-row normalization census contains zero forcing rows. The alpha statement is permutation-class only, and the rank-two support certificate is finite-tier/local.

5.2 Declared response premise and basepoint placeholder

PREMISE-GRADE-4-RESPONSE

The branch $|\lambda\mu| = 1$ is declared. The extremal $\sqrt{2}$ alternative remains mathematically allowed and was not adopted; the zero-response alternative was declined. The orientation $\tau = \pm 1$ remains unselected. The declaration constructs neither Π_{full} nor CKM.

DECLARED-BASEPOINT-PLACEHOLDER

The basepoint symbol records the type of subgroup datum still needed. No subgroup is selected by this placeholder.

6 Roman/clock semantic scope

The historical source output remains 17/17, but the controlled semantic count is exactly fifteen computed predicates plus two literal premise/fence assertions. The strong finite-invariant obstruction is Certified. The refined orientation-parity interface is Structural and unconstructed. The Roman antipodal action and the clock Möbius parity are not identified as the same $\mathbb{Z}_2$ without an exhibited intertwiner.

The two source keys re-resolved against the shipped Rev32.5 tree are:

- `p1_peirce_gauge_group.tex:129`, key phrase `\emph{interface-type} statement`;
- `appendix_m_order5_clock_occupation.tex:45-58`, key phrase `M=60=2h(E_8)`. The $15 + 2$ semantic count is carried by the shipped Track-2 AST audit, not by Appendix M itself.

7 Source apparatus and validation

The v1.3 source package ships the exact thirty-three Rev32.5 TeX files, the frozen source ledger, the stable-ID/correction sidecar, locator registry, comparator registry, comparator census, proof-artifact resolver, kernel lint, source-locator audit, claim-manifest validator, validator mutation controls, and vacuity lint. A locator never substitutes for the artifact it locates.

A1541 residuals closed

R1: the manifest validator is exercised against mutation-based negative controls; deleting a required field, corrupting a controlled vocabulary, collapsing the Roman split, blanking a shipped artifact locator, or breaking evidence-gap coverage must fail. No literal truth check is accepted as evidence.

R2: the human-readable claim registry is rendered at a minimum 9-point core-table type size and is visually audited after PDF generation.

8 Release architecture

Unit	Function	Ceiling
Guide	Basis, hold, comparator, taxonomy, and release contract.	Editorial authority only.
A	Auditable substrate and Route-B theorem.	Finite/conditional mathematics; no physical selector.
B	Finite-census gauge obstruction.	Declared domain; no universal gauge emergence.
C	Loaded cubic and selector production.	Complete-conditional finite action; physical coefficients remain priced.
D	Row-level phenomenology registry.	No formula is promoted by agreement.
E	Nuclear protocol and scoped negative/reopen ledger.	Finite protocol, not nuclear EFT.
F	Cartan/OMOS/clock and six-face carrier arc.	Finite record quotient; physical observation map open.
M	112-row claim manifest.	Machine-readable rows control the prose summary.

9 Readiness ruling

Publication architecture and release reproducibility: ready for house review. The package is content-addressed, split into publication and source/reproduction parts, and includes validation and visual-QA receipts. **Scientific submission at fully reproduced theorem level: still gated row by row.** Claims whose source certificates remain absent retain their evidence gaps, and no Track-2 prose upgrades them.

10 Conclusion

The point of v1.3 is not to make the programme sound stronger. It is to make the polished series agree with its newest sealed notebook: exact current comparator readouts, explicit loaded and selected steps, sharper nuclear and neutrino negatives, a declared rather than derived response amplitude, a placeholder rather than a selected basepoint, and a source package that can be audited without narrative memory.

Paper A – Auditable Exceptional-Jordan / $E_{7(7)}$ Substrate

Representations, scalar geometry, integral and action-frame interfaces, bounded
fifth-direction carrier, and the Rev32.5 Route-B record

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Abstract

The SGTOE programme is formulated on the split Albert algebra $J_3(\mathbb{O}_s)$, its Freudenthal system, and the split real exceptional group $E_{7(7)}$. This paper collects the publication-facing substrate: the explicit symplectic 56, the 133-generator action, the scalar tangent space $70 = 54 + 16$, the contrasting Lie-triple behavior of those two planes, the integral Lagrangian polarization and cubic interface, the rigid-to-local $SU(8)$ frame map, the Rev29 FTS/Lagrangian-boundary theorem, and the finite fifth-direction signatures. The results are mathematical or computational statements about named carriers. They do not select the compact Standard-Model frame, construct the full particle/gauge/mass action, derive an absolute scale, or establish a physical Kaluza–Klein spacetime.

Two-axis provenance.

Every load-bearing row carries two independent labels. The *mathematical status* is exactly one of Proved, Certified, Structural, Input, or Historical. The *physical attachment* is exactly one of Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, or External-input; N/A is a registry sentinel only for claims with no physical-observable attachment. An exact algebraic theorem does not become a physical prediction merely because its formula is exact. Caution tags and lifecycle states are stored in separate fields.

Publication evidence boundary.

Evidence state is orthogonal and uses six controlled values: analytic-in-text, source-certificate-shipped, source-certificate-not-shipped, external-source, registry-only, or open/no-artifact. Every externally active Proved or Certified claim requires a complete inspectable proof in the paper or a content-addressed public artifact and an independent verifier.

1 Scope and adopted premises

The algebraic substrate is the split octonion algebra $\mathbb{O}_s$ with norm signature $(4, 4)$ and the exceptional Jordan algebra of Hermitian 3×3 matrices,

$$J_3(\mathbb{O}_s) = \text{Herm}_3(\mathbb{O}_s), \quad \dim_{\mathbb{R}} J_3(\mathbb{O}_s) = 27.$$

The neutral signature is an **adopted model premise**: physical equivalence of the $(1, 3)$ and $(3, 1)$ sign conventions motivates a sign-neutral fibre, but does not logically force the direct-sum signature by itself. Under the additional requirement of an eight-dimensional real normed composition algebra, the neutral realization is $\mathbb{O}_s$. The three-by-three Albert algebra is then the working rank-three Jordan carrier; its identification with three physical families remains loaded.

For $X, Y \in J_3(\mathbb{O}_s)$, the Jordan product and trace pairing are

$$X \circ Y = \frac{1}{2}(XY + YX), \quad \langle X, Y \rangle = \text{Tr}(X \circ Y),$$

and the Freudenthal cross product is

$$X \times Y = X \circ Y - \frac{1}{2}\text{Tr}(X)Y - \frac{1}{2}\text{Tr}(Y)X + \frac{1}{2}(\text{Tr}(X)\text{Tr}(Y) - \text{Tr}(X \circ Y))I.$$

The cubic norm $N(X)$ and adjoint $X^\#$ satisfy the standard rank-three identities. The golden diagonal used downstream is

$$J_{\text{vac}} = \text{diag}(\varphi, 1, \varphi^{-1}), \quad \varphi = \frac{1 + \sqrt{5}}{2}, \quad N(J_{\text{vac}}) = 1.$$

Paper A records this point as a named algebraic carrier; its physical vacuum attachment is not established by the substrate alone.

2 The explicit 56/133 representation contract

Let $U \cong \mathbb{R}^8$. In the standard real $SL(8, \mathbb{R})$ frame,

$$V_{56} = \Lambda^2 U \oplus \Lambda^2 U^*, \quad \mathfrak{e}_{7(7)} \cong \mathfrak{sl}(U) \oplus \Lambda^4 U$$

as vector spaces. A vector is written $Z = (x^{ij}, y_{ij})$, with a fixed antisymmetric-pair ordering. The symplectic form has canonical block structure,

$$\Omega(Z, Z') = x^{ij}y'_{ij} - x'^{ij}y_{ij}.$$

For $A \in \mathfrak{sl}(U)$,

$$\begin{aligned}(\delta_A x)^{ij} &= A^i_k x^{kj} + A^j_k x^{ik}, \\ (\delta_A y)_{ij} &= -A^k_i y_{kj} - A^k_j y_{ik},\end{aligned}$$

while a four-form generator exchanges the electric and magnetic blocks through contraction with the four-form and its Hodge dual. The exact orientation and normalization are part of the frozen basis contract, not inferred from schematic notation.

The source record reports the following finite certificate chain on this carrier:

1. 133 linearly independent real generators on a 56-dimensional space;
2. symplecticity $T_\alpha^T \Omega + \Omega T_\alpha = 0$;
3. closure and Jacobi in the declared basis;
4. stabilization of the quartic invariant with stabilizer dimension 133;
5. the split real-form diagnostic and the compact/noncompact decomposition;
6. the scalar 70 and its coset metric.

These are **Certified** statements in the source record with evidence state *source-certificate-not-shipped*. This PDF does not ship or rerun the full array bundle, so it does not re-label them as independently reproduced in the present package.

Convention discipline.

Every externally citable computational claim must resolve to the basis ordering, normalization, source arrays, exhausted domain, norm, precision, and manifest. Dimension counts alone do not identify a real form; small residuals alone do not establish search completeness or global geometry.

3 Scalar geometry: $70 = 54 + 16$

The scalar manifold of maximal four-dimensional supergravity is locally

$$\mathcal{M}_{70} = E_{7(7)}/SU(8), \quad \mathfrak{e}_{7(7)} = \mathfrak{su}(8) \oplus \mathfrak{p}, \quad \dim \mathfrak{p} = 70.$$

The registered projectors split the tangent carrier as

$$\mathfrak{p} = \mathfrak{p}_{54} \oplus \mathfrak{p}_{16}, \quad \mathfrak{p}_{54} = \text{im } P_{54}, \quad \mathfrak{p}_{16} = \text{im } P_{16},$$

with

$$P_{54}^2 = P_{54}, \quad P_{16}^2 = P_{16}, \quad P_{54}P_{16} = 0, \quad P_{54} + P_{16} = I_{70},$$

and ranks 54 and 16.

3.1 The finite Lie-triple test

For a symmetric pair $\mathfrak{g} = \mathfrak{k} \oplus \mathfrak{p}$, a subspace $\mathfrak{m} \subset \mathfrak{p}$ is a Lie-triple system when

$$[[\mathfrak{m}, \mathfrak{m}], \mathfrak{m}] \subseteq \mathfrak{m}.$$

Equivalently, the ambient curvature preserves $\mathfrak{m}$. The source computation tests the leakage tensor

$$\ell_{abc} = (I - P_{\mathfrak{m}})[u_a, [u_b, u_c]]$$

over the declared complete finite domain.

Source result. The Jordan-visible 54-plane is not a Lie-triple system: order-one leakage into the complementary sector occurs. The complementary 16-plane is a Lie-triple system to machine precision. Its bracket-generated algebra has dimension 28, compact part dimension 12, trivial center, real rank four, and split D_4 invariants, identifying the local algebra with $\mathfrak{so}(4, 4)$ and the local symmetric-space carrier with $SO(4, 4)/(SO(4) \times SO(4))$.

The mathematical status is **Certified**. The physical attachment is LOADED-CORRESPONDENCE: the result distinguishes two named tangent planes, but does not identify the 16 with physical matter, prove a full vector-coupled truncation, or construct the global embedded quotient.

3.2 Generated-algebra certificate contract

The identification of the bracket-generated algebra with $\mathfrak{so}(4, 4)$ is licensed only by the joint certificate, not by dimension alone. The public payload must expose the following outcome-neutral checks.

Invariant	Required evidence	Registered target
Generated dimension	Exact rank of the full bracket-generated basis	28
Center and derived algebra	Exact central nullspace and equality $[\mathfrak{g}_{16}, \mathfrak{g}_{16}] = \mathfrak{g}_{16}$	center 0; perfect
Real rank	Explicit split Cartan and centralizer test	4
Killing inertia	Exact/integer inertia in the convention $B(X, Y) = \text{tr}(\text{ad } X \text{ ad } Y)$, noncompact-positive	$(16_+, 12_-, 0_0)$
Maximal compact	Bracket-closed compact subalgebra and type certificate	$\mathfrak{so}(4) \oplus \mathfrak{so}(4)$, dimension 12
Root data	Cartan eigenvalues, restricted roots, and multiplicities	split type D_4
Explicit isomorphism	Full-rank change of basis preserving every basis-pair bracket	standard $\mathfrak{so}(4, 4)$ model
Reproduction	Source hashes, tolerances, controls, and a method-disjoint rerun	PASS

A missing item demotes only the real-form identification and dependent local quotient; it does not erase the separately certified Lie-triple closure of the 16-plane.

4 Integral symplectic and cubic interfaces

4.1 Primitive integral Lagrangian polarization

The real 56 admits the standard integral refinement

$$\Lambda_{56}^{\mathbb{Z}} = \Lambda^2 \mathbb{Z}^8 \oplus \Lambda^2 (\mathbb{Z}^8)^*$$

with unimodular symplectic pairing. A signed determinant-one basis change organizes it into the graded form

$$\Lambda_{56}^{\mathbb{Z}} = (\mathbb{Z}e_- \oplus J_{\mathbb{Z},+2}) \oplus (\mathbb{Z}e_+ \oplus J_{\mathbb{Z},-2}^{\vee}),$$

where the two 28-dimensional halves are primitive integral Lagrangians and the restricted electric-magnetic pairing has unit Smith factors.

For a magnetic shear

$$B_m(\Theta) = B_m + B_e \Theta, \quad \Theta^T = \Theta,$$

the grading relations imply

$$(D_{\text{KK}} + 2I)B_m(\Theta) = 4B_e \Theta.$$

Since B_e has primitive rank four, the only grading-homogeneous section is $\Theta = 0$. This removes the continuous theta-shear ambiguity inside the named polarization; it does not choose every possible mod-two quadratic refinement.

4.2 Full integral cubic interface

The source record supplies an integer matrix $M \in GL(27, \mathbb{Z})$, $\det M = 1$, relating the Peirce coordinates of $J_3(\mathbb{O}_s)$ to the $(15, 1) \oplus (6, 2)$ realization,

$$I_3(A, X_0, X_1) = \text{Pf}(A) + X_0^T A X_1, \quad I_3(Mx) = N_J(x).$$

The comparison is coefficientwise, not a random-evaluation fit.

A separate rank invariant obstructs a stronger identification. For the cubic polarization C and an eight-plane W , define

$$\mu_W : \text{Sym}^2 W \rightarrow 27^*, \quad \mu_W(w_1, w_2)(v) = C(w_1, w_2, v).$$

The registered invariant triples are

$$(1, 1, 8)_{\text{Peirce}}, \quad (6, 6, 4)_{B\text{-chirality}}.$$

Therefore no cubic-preserving $E_{6(6)}$ automorphism maps the Peirce chirality planes to the loaded compact readout planes. The correct architecture is a span of interfaces,

$$(J_3(\mathbb{O}_s), N_J) \xleftarrow{\pi_{\text{cubic}}} \mathcal{Y}_{\text{loaded}} \xrightarrow{B_{\text{SM}}} \Lambda^{\text{even}} \mathbb{C}^5,$$

not one global change of basis.

5 Rigid-to-local $SU(8)$ action frame

The local compact algebra and scalar coordinates are distinct 35-dimensional objects:

$$\mathfrak{su}(8) = \mathfrak{so}(8) \oplus i \text{Sym}_0(8, \mathbb{R}),$$

while the scalar 70 is represented by 35 complex components of a self-dual four-form. With $\Phi_{[ij],[kl]} = \phi_{ijkl}$, the coset generator can be written

$$X(\phi) = \begin{pmatrix} 0 & a\Phi \\ a\Phi^\dagger & 0 \end{pmatrix}, \quad a = -\frac{\sqrt{2}}{4}, \quad \mathcal{V} = e^X = \begin{pmatrix} u & v \\ v^* & u^* \end{pmatrix}.$$

The source build reports the pseudounitary, symplectic, pseudoreality, and rank-70 tangent gates.

The rigid golden Cartan reaches the local self-dual chart only after the electric–magnetic Cayley transform is composed with the triality/Young-basis intertwiner S_Γ :

$$\mathcal{C}_\Gamma = \frac{1}{\sqrt{2}} \begin{pmatrix} S_\Gamma & iS_\Gamma \\ S_\Gamma^* & -iS_\Gamma^* \end{pmatrix}.$$

The naive pairwise Cayley map fails the four-form gate at order one; the Cayley-plus-triality map passes at the registered residual. This closes a frame-conversion problem, not a physical mass problem. The compact $B + SU(5)$ orientation remains a loaded frame.

6 Rev29 theorem: the FTS as symplectic bulk vectorization

Let $\mathcal{F}(J_3(\mathbb{O}_s))$ denote the Freudenthal triple system. The executed Rev29 P0-1 result identifies

$$L_J = \mathbb{R}e_- \oplus J_{+2}$$

as a 28-dimensional Lagrangian subspace of the 56 and licenses the sentence:

The FTS is the symplectic bulk vectorization of the cubic Jordan Lagrangian boundary.

This is a **Proved** kinematic statement in the source record, with no physical-action attachment. The grading parameter ω contributes kinematics, not dynamics. The result does not supply a Hamiltonian, a parent action, an LSZ map, or the physical residue. Those are collected under priced clause 27, the open FTS symplectic-lift/Hamiltonian attachment.

7 The bounded fifth-direction carrier

The finite winding-category layer carries five source-reported results:

Statement	Math status	Licensed reading
The $\mathbb{Z}_4$ tick is additive and reverses under the mirror	Certified	A momentum-like grading modulo four on the finite generator set.
The cylinder condition fails with signature $(1, 27, 27, 1)$	Certified	A flat cylinder reduction does not retain the declared finite content.
The mirror/Lucas flicker is the antiperiodic spin structure	Certified	A finite NS-type holonomy signature.
The scale slot has $\dim H^2 = 1$ in the declared symmetry census	Proved	One positive central scale class within the winding architecture; its value is external.
The three signatures have no purely four-dimensional countermodel in the declared carrier class	Structural	Two-sided necessity for the internal direction at the finite-carrier level.

Physical fence. These statements do not identify a physical fifth spacetime coordinate, derive a radion potential, or prove an Einstein–Bergmann compactification. The Kaluza–Klein interpretation is discussion-tier until a localization/action map and a scored observable attach the finite carrier to spacetime.

8 Claim map

Claim ID	Math status	Attachment	Current sentence / evidence gate
A-SUB-01	Certified	N/A	The frozen 56/133 matrices realize the declared split symplectic substrate; source certificate not shipped.
A-SUB-02	Certified	Loaded-correspondence	P_{54} and P_{16} are complementary projectors of ranks 54 and 16.
A-GEO-01	Certified	Loaded-correspondence	The canonical 54-plane fails the Lie-triple criterion; the canonical 16-plane passes and has the registered split- D_4 generated-algebra certificate.
A-INT-01	Certified	N/A	The integral 56 has primitive Lagrangian halves and a unique homogeneous magnetic section in the named grading.
A-CUB-01	Certified	N/A	The full integral cubic map exists; Peirce and compact chirality planes are not related by one cubic automorphism.
A-FRM-01	Certified	Loaded-correspondence	Cayley plus triality, not Cayley alone, maps the rigid golden Cartan into the local self-dual four-form chart.
A-FTS-01	Proved	N/A	The FTS is the symplectic bulk vectorization of the cubic Jordan Lagrangian boundary; Hamiltonian attachment remains open.
A-5D-TICK	Certified	Conditional-readout	The finite $\mathbb{Z}_4$ tick is additive and mirror-reversing, a momentum-like grading only.
A-5D-CYL	Certified	Conditional-readout	The finite carrier fails the cylinder-condition count with signature $(1, 27, 27, 1)$.
A-5D-NS	Certified	Conditional-readout	The mirror/Lucas flicker has the registered antiperiodic spin-structure signature.

Claim ID	Math status	Attachment	Current sentence / evidence gate
A-5D-SCALE	Proved	Conditional-readout	The declared winding census contains one positive central scale class; its numerical value is external.
A-5D-NEC	Structural	Conditional-readout	No purely four-dimensional countermodel reproduces all three finite-carrier signatures in the declared comparison class.

9 Public artifact contract

A publication-active Paper A release must contain, at minimum: machine-readable bases for the 56, 70, and 133; the symplectic form and quartic invariant metadata; generator and projector arrays; exact or content-addressed structure constants; closure, Jacobi, real-form, projector, Lie-triple, integral-lattice, cubic-map, and frame-map certificates; the complete generated-algebra payload listed above; positive and deliberately corrupted controls; expected hashes; and a method-disjoint cold replication. A reader must be able to recover every displayed table from those outputs rather than from manually copied notebook values.

10 Limitations and open interfaces

- The compact Standard-Model frame, hypercharge readout, and physical matter metric are not selected by Paper A.
- The global integration of the missing-16 local symmetric space is separate from the Lie-triple result.
- The action chain $\Theta \rightarrow T \rightarrow A_1, A_2, A_3$ requires the physical embedding tensor and projection; no fermion mass follows from the frame map alone.
- Clause 27, the FTS Hamiltonian/symplectic-lift attachment, remains open.
- The finite fifth-direction signatures carry no radion stabilization, continuum localization, or external-time identification.
- Paper A does not establish Einstein universality, a Yang–Mills functor, or an interacting pole.

11 Conclusion

The substrate is scientifically useful because its finite statements survive revisions of the phenomenological interpretation. The split exceptional-Jordan carrier, the explicit $E_{7(7)}$ representation, the scalar Lie-triple contrast, the integral/cubic interfaces, the local action frame, and the FTS Lagrangian polarization can all be audited without accepting the loaded Standard-Model dictionary. The same separation fixes the boundary: physical localization, compact-frame selection, Hamiltonian attachment, and observable response belong downstream.

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- [4] S. Krutelevich, “Jordan algebras, exceptional groups, and Bhargava composition,” *J. Algebra* 314 (2007) 924–977.
- [5] O. Loos, *Symmetric Spaces I*, W. A. Benjamin (1969).
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v1.3 carry-forward: Route-B proof repair and variational theorem

Status and scope

The positive diagonal spectrum $\{\phi, 1, \phi^{-1}\}$ remains selected up to permutation under the named conditional hypotheses. The ordered physical Peirce frame remains loaded. Rev32.5 adds a second, variational Route-B theorem: inside the positive golden-field unit class, minimizing the Gram invariant selects the same spectrum and outputs DET-7. No observable or physical tier moves.

1 Algebraic proof with the dead monotonicity step removed

Let $a = \phi^{n_1}$, $b = \phi^{n_2}$, $c = \phi^{n_3}$ with $n_1 + n_2 + n_3 = 0$. Order $n_1 \geq n_2 \geq n_3$, set $p = n_1 - n_2$ and $q = n_2 - n_3$, and define

$$A_k = \phi^{2k} + \phi^{-2k} = L_{2k}, \quad F(p, q) = 3 + A_p + A_q + A_{p+q}.$$

The zero-sum condition is equivalent to $p + 2q \equiv 0 \pmod{3}$. The small admissible cases are $(0, 0)$ with $F = 9$ and $(1, 1)$ with $F = 16$. Every other admissible pair has $p + q \geq 3$, so $A_{p+q} \geq A_3 = 18$; the exact case split gives $F \geq 41$ at the first repeated-gap spectrum and no rival at 16. Hence $F = 16$ occurs only at $\{n_1, n_2, n_3\} = \{1, 0, -1\}$.

Retired step

No global monotonicity in $\max_i |n_i|$ is used or claimed. The counterexample $F(5, 0, -5) = 15376 > 11561 = F(6, -3, -3)$ remains a positive control against reintroducing the false lemma.

2 Variational Route-B theorem

Theorem – s1085

Within the class of positive units of $\mathbb{Z}[\phi]$ satisfying $abc = 1$ and excluding the degenerate equal spectrum, the Gram functional has unique minimum

$$\min F = 16$$

at exponent gaps $(p, q) = (1, 1)$, equivalently $\{n_i\} = \{1, 0, -1\}$. Since

$$\det G = F - 9,$$

the minimum outputs $\det G = 7$. Thus the golden vacuum and DET-7 arise together as the unique nontrivial variational minimum inside Route B.

3 What changed and what did not

- **Changed:** the earlier remark that the golden spectrum is a distinguished low-spread configuration is upgraded to a theorem in the declared variational class; DET-7 is an output there.
- **Unchanged:** the separately printed algebraic Route-B selector may still be stated with the Gram condition among its premises; Route A is unchanged.
- **Unchanged:** downstream 7/16, 7/3, and other DET-7 uses consume the algebraic invariant exactly as before. The theorem does not prove their physical attachment.
- **Unchanged:** only the spectral orbit is selected. Ordering requires the loaded frame or a symmetry-breaking tensor.

4 Reproduction receipt

The shipped kernel `s1085_routeB_lucas_variational.py` was executed twice. Both standard outputs were byte-identical (SHA-256 `b8f44a40bb4da09d019117dc0db23dfad42954253b987d8f38d5e1d7ba504d3f`) and matched the sealed expected-output file exactly, with 20/20 assertions passing.

Paper B – Finite-Census Gauge Obstruction

Branching wall, matter-colour charge wall, loaded one-generation functor, and restricted completion theorem

Tom O’Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: **CONTESTED**, $3/8$ retained, A1566 lane-adjudicated and PI ruling pending.

Abstract

Within a declared maximal $N = 8$, $D = 4$, $E_{7(7)}$ embedding-tensor setting, the supplied finite census fails to realize the compact colour-and-weak adjoint content and the unitary matter-colour representation required by the loaded Standard-Model frame. The positive companion statement is conditional: once the compact field dictionary, hypercharges, full colour-plus-weak action, and 10_H -only scalar closure are imposed, the low-energy completion is restricted essentially to G_{SM} , an optional $U(1)_{B-L}$, and the allowed global quotients. The compact physical frame nevertheless remains an input. The result rules out one natural gauging route; it does not prove a universal ultraviolet no-go or derive the gauge group.

Two-axis provenance.

Every load-bearing row carries two independent labels. The *mathematical status* is exactly one of Proved, Certified, Structural, Input, or Historical. The *physical attachment* is exactly one of Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, or External-input; N/A is a registry sentinel only for claims with no physical-observable attachment. An exact algebraic theorem does not become a physical prediction merely because its formula is exact. Caution tags and lifecycle states are stored in separate fields.

Publication evidence boundary.

Evidence state is orthogonal and uses six controlled values: analytic-in-text, source-certificate-shipped, source-certificate-not-shipped, external-source, registry-only, or open/no-artifact. Every externally active Proved or Certified claim requires a complete inspectable proof in the paper or a content-addressed public artifact and an independent verifier.

1 Domain and public wording mode

The ambient objects are the 56 and 133 of $E_{7(7)}$, the embedding tensor

$$\Theta : 56 \longrightarrow 133, \quad X_M = \Theta_M^\alpha t_\alpha,$$

its linear 912 constraint, and the quadratic/locality constraints of maximal four-dimensional supergravity. The target is a compactly embedded

$$\mathfrak{i} = \mathfrak{su}(3) \oplus \mathfrak{su}(2)$$

with the representation class needed by the loaded one-generation Standard-Model dictionary.

The source Appendix F states a stronger domain-wide theorem. Track-2 adopts the S259 mode declaration instead:

Public headline.

wide wording remains gated on three completeness bridges: compact-embedding classification, the embedding-tensor module-intertwiner bridge, and symplectic-frame completeness.

This downgrade does not alter any computed multiplicity, invariant-space dimension, or finite no-go. It constrains only the quantifier attached to them.

2 The branching-wall computation

2.1 Why the adjoint must occur

Suppose a compact algebra $\mathfrak{i}$ is contained in the gauge image $\text{im } \Theta$. Gauge invariance of the embedding tensor says that Θ intertwines the $\mathfrak{i}$ -actions on the 56 and 133,

$$\Theta(X \cdot v) = [X, \Theta(v)], \quad X \in \mathfrak{i}.$$

Consequently $\text{im } \Theta \cong 56 / \ker \Theta$ as an $\mathfrak{i}$ -module. Compactness gives complete reducibility, so every irreducible constituent of the image must occur in $56 \downarrow \mathfrak{i}$. If the image contains $\mathfrak{i}$ itself, then the adjoint isotypes

$$(8, 1) \oplus (1, 3)$$

must both occur in the restricted 56.

This is the module-intertwiner bridge used by the source computation. Track-2 treats its full publication-grade generality as one of the completeness gates, while retaining the exact result on the enumerated classes.

2.2 The 21-class census

The source enumerates 21 faithful compact embedding classes through the branching of the fundamental 8 and computes

$$56 \downarrow \mathfrak{i} = \Lambda^2 8 \oplus \Lambda^2 \bar{8}$$

by exact character arithmetic and explicit equivariant kernels. In every class, at least one required adjoint constituent is absent. Twenty classes have no $(8, 1)$. The sole octet-bearing class,

$$8 = (1, 2) \oplus (3, 1) \oplus (\bar{3}, 1),$$

has no $(1, 3)$ in the 56.

Finite-census branching wall. No enumerated faithful compact class simultaneously contains the colour octet and weak triplet required by the image-compatible adjoint test. The finite census therefore contains no compact $\mathfrak{su}(3) \oplus \mathfrak{su}(2)$ gauging candidate of the tested kind.

The result was source-reported as independently reproduced by a method-disjoint character calculation, including the fingerprint octet-bearing class. The present package does not rerun those kernels.

3 The matter-colour charge wall

The algebra name $\mathfrak{su}(3)$ is insufficient. Matter colour requires the unitary embedding class

$$8 \downarrow \mathfrak{su}(3) = 3 \oplus 5 \cdot 1,$$

whose 56-content is

$$56 \downarrow \mathfrak{su}(3) = 20 \cdot 1 \oplus 6 \cdot 3 \oplus 6 \cdot \bar{3},$$

with no adjoint octet. The source computes the invariant embedding-tensor space in this class, its rowspace union, and the exact orthogonality of the missing eight adjoint directions.

Finite-census charge wall. Within the tested invariant embedding-tensor class, the unitary matter-colour adjoint is absent from every image-compatible rowspace. The realizable colour classes in the source census are vector/adjoint classes, not the loaded unitary matter class.

This is the physically sharper obstruction: the right algebraic label can occur in a representation class that cannot carry Standard-Model matter colour.

4 The loaded one-generation functor

The obstruction does not erase the positive representation dictionary. After a compact $B + SU(5)$ frame is declared, the source map gives

$$8 = \bar{5} \oplus \mathbf{1}^{\oplus 3}, \quad \Lambda^3 8 = \mathbf{10} \oplus 3 \bar{\mathbf{10}} \oplus 3 \bar{5} \oplus \mathbf{1},$$

with the dimension checks $5 + 3 = 8$ and $10 + 30 + 15 + 1 = 56$, and an isometric G_{SM} -equivariant embedding of one loaded generation into the spin-one-half 56. In Peirce language,

$$\begin{aligned} J_{13} &\longleftrightarrow Q_L \oplus L_L, \\ J_{23} &\longleftrightarrow u^c \oplus d^c \oplus e^c \oplus \nu^c, \\ J_{12} \oplus \mathbb{R}c_1 \oplus \mathbb{R}c_2 &\longleftrightarrow 10_H. \end{aligned}$$

The exact one-generation gauge and mixed gravitational anomaly sums vanish in the loaded dictionary. That audit validates the field assignment; it does not derive the compact frame.

5 Uniqueness of completion, with premises printed

The source enumerates compact reductive completions subject to the following load-bearing premises:

1. the full loaded colour-plus-weak action is gauged;
2. the fermion content is exactly the loaded sixteen Weyl states with the source hypercharges;
3. scalar closure is restricted to the loaded 10_H ;
4. the comparison class is the declared finite completion class.

Within that class, the completion is unique up to an extra Cartan proportional to $3(B - L)$ and the global quotient

$$\Gamma \in \{1, \mathbb{Z}_2, \mathbb{Z}_3, \mathbb{Z}_6\}.$$

This is a **conditional uniqueness statement**. It does not convert the compact gauge frame into an emergent output.

6 The shadow remnant

The source potential scan identifies a shadow-type

$$\mathfrak{su}(3) \oplus \mathfrak{u}(1) \oplus \mathfrak{u}(1)$$

inside a classically stable missing-16 sector of an $SO(6, 2)$ row, with a dyonic completion related to a published Minkowski vacuum. The two abelian generators fail the Standard-Model charge-pattern test at the origin, across the scanned family by counting, and under the source charge-wall logic. The shadow is therefore structural, not the Standard Model in disguise.

Track-2 includes this only as a bounded convergence signal. It is not used to strengthen the finite-census public theorem, and no quantum-stability statement is made.

7 A frame-free Higgs-line no-go

On the bare Freudenthal carrier

$$\mathcal{F} = \mathbb{R} \oplus \mathbb{R} \oplus J_3(\mathbb{O}_s) \oplus J_3(\mathbb{O}_s),$$

the real 56 of $E_{7(7)}$ has commutant $\mathbb{R}I$ in the source construction. Any $E_{7(7)}$ -invariant idempotent therefore has rank 0 or 56. In particular there is no invariant rank-one projector selecting a Higgs line.

This is a clean mathematical boundary: a frame-free electroweak line is unavailable on the bare carrier. The physical Higgs orientation must be loaded or selected by additional structure.

8 Completeness gates

The finite results above become a domain-wide theorem only if the release artifact closes all three bridges below without relying on the desired conclusion.

Gate	Required object	Failure consequence
Compact-embedding completeness	A proof that every physically relevant compact embedding is represented by the enumerated classes, with disconnected and global subtleties controlled.	The result remains a finite-census obstruction.
Embedding-tensor module bridge	A theorem that every candidate gauge image must carry the required adjoint as a quotient/constituent of the tested 56 in the exact formalism used.	Branching is a necessary diagnostic, not a universal gauging no-go.
Symplectic-frame completeness	A proof that every allowed electric/magnetic frame is covered or that the obstruction is frame invariant.	A non-enumerated frame remains logically open.

9 Public census and verifier contract

The finite-census statements remain publication-inactive until the release ships the complete evidence domain rather than a result summary. The required payload is:

- `embedding_classes.csv` with all 21 classes, defining 8-branchings, conjugacy labels, and completeness scope;
- exact character/highest-weight data and a row-by-row table of $(8, 1)$ and $(1, 3)$ multiplicities;
- `branching_wall_certificate.json` and `charge_wall_certificate.json`;
- `module_intertwiner_certificate.json`, `compact_frame_completeness_certificate.json`, and a symplectic-frame certificate;
- `shadow_charge_comparison.json`, `FOIL_DOMAIN.md`, and `foil_census.csv`;
- positive controls, deliberately failing controls, expected hashes, and a strict offline verifier report.

The corrected $SU(5)$ decomposition above must be generated from that exact branching artifact in the scientific freeze; the present correction repairs the editorial equation but does not substitute for the source certificate.

10 Claim map

Claim ID	Math status	Attachment	Current sentence / evidence gate
B-BR-01	Certified	N/A	All 21 enumerated faithful compact classes fail the simultaneous adjoint-content test; complete table not shipped.
B-CH-01	Certified	N/A	The loaded unitary matter-colour class has no image-compatible octet in the tested invariant space.
B-FUN-01	Certified	Loaded-correspondence	The declared $B + SU(5)$ frame supports one loaded generation and exact anomaly cancellation.
B-UNI-01	Structural	Loaded-correspondence	Under the printed matter, charge, action, scalar, and finite-census premises, the compact completion is unique up to $B - L$ and global quotient.
B-SHD-01	Certified	Conditional-readout	A shadow $\mathfrak{su}(3) \oplus \mathfrak{u}(1)^2$ remnant occurs in the scanned classical family and fails the SM charge-pattern test.
B-HIG-01	Proved	N/A	The bare real 56 has no $E_{7(7)}$ -invariant rank-one Higgs projector.
B-COMP-01	Structural	N/A	Domain-wide wording is open until compact-embedding, module-intertwiner, and symplectic-frame completeness close.

11 Limitations

- The compact gauge frame remains an input; the paper does not derive G_{SM} .
- The public obstruction is finite-census and route-specific.
- The low-energy uniqueness statement is conditional on a restricted field, charge, action, and scalar class.
- The shadow scan is classical and does not establish quantum stability or physical hypercharge.
- No Yang–Mills kinetic term, confinement mechanism, coupling normalization, or compact-colour real-form selector is derived.
- The loaded representation functor does not select three generations or a physical mass matrix.

12 Conclusion

Paper B is strongest as a precisely scoped negative. The supplied finite representation census blocks a tempting gauging route twice: once at the simultaneous colour/weak adjoint level and again at the matter-colour representation level. The positive loaded dictionary remains useful, but its compact frame is not thereby selected. Closing the three completeness bridges would justify stronger quantifiers; until then, the finite-census wording is the scientifically correct publication mode.

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Paper C – Loaded Exceptional Cubic and Selector Production

One-generation Yukawa structure, coefficient obstruction, complete-conditional parent action, priced nonlinear action shape, and exact two-axis status wording

Tom O’Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: **CONTESTED**, 3/8 retained, A1566 lane-adjudicated and PI ruling pending.

Abstract

A $\text{Der}(\mathbb{O}_s)$ -invariant trilinear on the loaded Albert cubic, followed by the loaded hypercharge Reynolds projection, realizes the four one-generation Standard-Model Yukawa tensors $\{Qu^c H, L\nu^c H, Qd^c H^c, Le^c H^c\}$. In the declared channel, split- G_2 orbit symmetry and Reynolds/Schur structure force the common coefficient ray $(1, 1, 1, 1)$. The exact theorem domain and three explicitly labeled diagnostics then agree that the observed within-generation hierarchy is external to the banked parent action: the relevant symmetry-breaking data live outside $G_{2(2)}$, the residue map is underdetermined, perturbative running produces only order-one spread, and the parent cubic-cone kinetic metric has relative rank zero. The negative is scoped to the banked exceptional-Jordan parent, its loaded gauge projection, its enhanced-symmetry candidates, and perturbative running. It is not a universal no-go against nonperturbative or composite dynamics.

Two-axis provenance.

Every load-bearing row carries two independent labels. The *mathematical status* is exactly one of Proved, Certified, Structural, Input, or Historical. The *physical attachment* is exactly one of Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, or External-input; N/A is a registry sentinel only for claims with no physical-observable attachment. An exact algebraic theorem does not become a physical prediction merely because its formula is exact. Caution tags and lifecycle states are stored in separate fields.

Publication evidence boundary.

Evidence state is orthogonal and uses six controlled values: analytic-in-text, source-certificate-shipped, source-certificate-not-shipped, external-source, registry-only, or open/no-artifact. Every externally active Proved or Certified claim requires a complete inspectable proof in the paper or a content-addressed public artifact and an independent verifier.

1 Loaded theorem domain

Paper C assumes the compact one-generation frame and field dictionary supplied by the loaded $B + SU(5)$ map. The working assignments are

$$\begin{aligned} J_{13} &\supset Q_L \oplus L_L, \\ J_{23} &\supset u^c \oplus d^c \oplus e^c \oplus \nu^c, \\ J_{12} \oplus \mathbb{R}c_1 \oplus \mathbb{R}c_2 &\supset H_u \oplus H_d. \end{aligned}$$

The hypercharges and one-generation anomaly cancellation are source-reported as exact in this loaded dictionary. None of these facts selects the compact frame from the bare split substrate.

The physical one-generation Yukawa is a cross-block trilinear. The older same-block carrier identity that extracts the middle eigenvalue 1 is a useful ultraviolet normalization statement, but not the literal Standard-Model field container.

2 An invariant exceptional-cubic trilinear

For split octonions a, b, c , define

$$T(c, b, a) = \text{Re}(c \cdot (b \cdot a)).$$

The source computation verifies the Leibniz invariance of T under $\text{Der}(\mathbb{O}_s) = \mathfrak{g}_{2(2)}$ at machine precision and verifies that the form is nonzero. The result required here is existence and invariance; uniqueness of the invariant trilinear is not assumed.

The loaded component map and cross-block Peirce closure identify the four gauge-allowed tensors:

Channel	Loaded fields	Tensor structure
up	Q, u^c, H	$Qu^c H$
Dirac neutrino	L, ν^c, H	$L\nu^c H$
down	Q, d^c, H^c	$Qd^c H^c$
charged lepton	L, e^c, H^c	$Le^c H^c$

Mathematical status: Certified. Physical attachment: Loaded-correspondence. The physical interpretation remains structural.

3 The hypercharge projection and exact mirror leakage

The raw octonionic trilinear contains both allowed and forbidden hypercharge sectors. The source component census reports

$$\|T_{\text{raw}}\|^2 = 64, \quad \|T_{Y=0}\|^2 = 32,$$

so exactly one half of the squared norm lies in the $Y = \pm 1$ mirror sectors. The loaded Reynolds projector

$$P_{Y=0}T_{\text{raw}} = \int_{U(1)_Y} dg \, g \cdot T_{\text{raw}}$$

removes those components exactly and leaves precisely the four tensors above.

This calculation contains the central physical fence. The raw exceptional cubic is not already the Standard-Model Yukawa tensor. The compact $U(1)_Y$ projection that makes it physical is loaded, and a group average over a transitive channel orbit cannot simultaneously generate distinct coefficient weights.

4 Why the coefficient ray is democratic

The imaginary split-octonion carrier has norm signature $(3, 4)$. The split group $G_{2(2)}$ acts transitively on each fixed non-null norm-class orbit. The four allowed loaded channels lie in one relevant orbit class. Therefore a $G_{2(2)}$ -invariant trilinear is constant across them. The source evaluation over rotated copies gives a spread at the quoted numerical precision and the common ray

$$(c_u, c_\nu, c_d, c_e) = (1, 1, 1, 1).$$

The same conclusion follows from the Reynolds/Schur structure: the invariant projector onto a multiplicity-one transitive channel weights each channel equally. Democracy is therefore not an arbitrary normalization choice; it is the invariant content of the declared channel.

Positive payload. The loaded exceptional cubic supplies exactly four one-generation Yukawa tensors and one democratic ultraviolet normalization. This is the complete positive claim of Paper C.

5 Exact theorem domain and supporting diagnostics

5.1 Exact domain statement I: the $G_2/U(1)_Y$ fence

Distinct coefficients would have to be carried by the loaded hypercharge structure, whose channel charges differ. But $U(1)_Y \not\subset G_{2(2)} = \text{Der}(\mathbb{O}_s)$. A G_2 -invariant cubic cannot internally encode the symmetry-breaking object that lies outside G_2 . Splitting therefore requires loaded G_2 -breaking structure.

5.2 Exact domain statement II: Reynolds-forced democracy

Both the hypercharge projector and the code-sector projector of the parent construction are Reynolds averages. On a channel set on which the symmetry is transitive, the invariant image is the democratic line. A non-democratic coefficient vector must come from a compensator outside the averaged invariance.

5.3 Finite diagnostic I: candidate-compensator sweep

The source tests the banked enhanced-symmetry candidates F_4 , E_6 , $B - L$, and J_{vac} . Each either preserves the joint invariant channel and remains democratic, or reintroduces components removed by the hypercharge census. A dual-Higgs ratio can split up-type from down-type but cannot cross the quark–lepton axis. A high power of J_{vac} can numerically mimic a small coefficient only at a dimension so large that it is not a leading mechanism.

5.4 Exact linear-algebra statement: the residue map is underdetermined

In log variables, write

$$y_f = q (Z_{Lf} Z_{Rf} Z_{Hf})^{-1/2}.$$

For the four channel supports $\{Qu^cH, Qd^cH^c, Le^cH^c, L\nu^cH\}$, the incidence matrix has rank four over eight independent residue variables. Thus arbitrary positive Yukawa quartets can be reproduced once the residues are free. The parent must derive those residues and thresholds before the coefficient quartet becomes predictive.

5.5 Illustrative diagnostic II: perturbative running

One source one-loop Standard-Model-plus-Dirac-neutrino trajectory from a democratic unit ray reaches the representative low-energy vector

$$(y_u, y_d, y_e, y_\nu) = (1.0207, 0.9958, 0.3959, 0.3581).$$

The spread is order one, while the physical within-generation hierarchy spans many orders of magnitude. This displayed trajectory does not convert the democratic ultraviolet ray into the observed quartet without additional thresholds or dynamics.

5.6 Exact domain statement III: parent kinetic relative rank zero

For the cubic-cone metric

$$G_{AB}(J) = \partial_A \partial_B [-\log N(J)]$$

at J_{vac} , the reflection-positive restrictions to the three Peirce edges are component-uniform scalars,

$$G_{12}^+ = 2\varphi^{-1}I_8, \quad G_{13}^+ = 2I_8, \quad G_{23}^+ = 2\varphi I_8.$$

Every loaded Yukawa vertex draws one field from each edge, so the canonical factor contains the common product

$$(G_{12}^+ G_{13}^+ G_{23}^+)^{-1/2}, \quad \varphi^{-1} \cdot 1 \cdot \varphi = 1.$$

The parent edge-residue map has rank one and relative rank zero: it cannot distinguish Q from L inside J_{13} , nor u^c, d^c, e^c, ν^c inside J_{23} . At least three independent loaded symmetry-breaking kinetic or threshold directions are required to split four coefficients.

Scoped negative. Within the banked exceptional-Jordan parent, the declared linear equivariant category, the loaded hypercharge projection, the explicitly tested enhanced-symmetry candidate set, the two-derivative functional calculus, and the displayed perturbative trajectory, the within-generation Yukawa hierarchy is not derived. The four physical coefficient ratios are external to the banked parent.

6 The 7/3 trace theorem is a different object

The source closes the trace-weight freedom in

$$\frac{7}{3} = \frac{\text{Tr}_\Theta(1 \oplus 3 \oplus \bar{3})}{\text{Tr}(3)}.$$

For the most general trace weights a on $3 \oplus \bar{3}$ and b on the singlet, the exact Frobenius identity of the split-octonion product forces $a = b$, hence the ratio 7/3. This is a finite-carrier trace-normalization theorem.

It is not an LSZ residue, a low-energy bottom/charm mass theorem, or a solution of the coefficient hierarchy. The metric-weighted signed-residue route returns a different object and is closed negative in the source record. The physical export arrow remains open.

7 What would close the hierarchy

A genuine positive closure would have to do at least one of the following:

1. derive the eight wave-function residues and all relevant thresholds from one physical parent action;
2. construct a G_2 -breaking compensator outside the banked invariance that survives the exact mirror-sector census;
3. supply nonperturbative/composite dynamics whose channel dependence is fixed rather than fitted;
4. produce an interacting response map and pole structure that attach the coefficient matrix to observables.

Merely writing a diagonal matrix of four desired numbers does not satisfy the gate.

8 Public artifact and theorem-domain contract

The exact results require a public loaded field dictionary, basis-exhaustive tensor census, hypercharge projector, complete raw/projected component arrays, invariant-space and commutant certificates, the candidate-compensator list with its stated finite scope, the residue-incidence matrix, the cubic-cone metric restrictions, and method-disjoint controls. The one-loop trajectory must ship its beta functions, boundary conditions, thresholds, precision, and output hash. Without those objects the paper reports the source state but does not invite the reader to infer a universal hierarchy no-go.

The strongest publishable theorem shape is deliberately narrow: in the declared loaded one-generation representation and declared linear equivariant category, the invariant coefficient space is one-dimensional and democratic, while the two-derivative parent normalization has zero relative rank on the four channels. Escaping the theorem requires additional representation content, a non-equivariant operator, derived thresholds/residues, or nonperturbative dynamics.

9 Claim map

Claim ID	Math status	Attachment	Current sentence / evidence gate
C-TRI-01	Certified	Loaded-correspondence	A nonzero $G_{2(2)}$ -invariant trilinear exists on the loaded cubic channel.
C-YUK-01	Certified	Loaded-correspondence	The loaded projection realizes the four one-generation Standard-Model Yukawa tensors.
C-LEAK-01	Certified	Loaded-correspondence	Half of the raw squared norm lies in forbidden mirror sectors; the loaded hypercharge projector removes it exactly.
C-DEM-01	Proved	Loaded-correspondence	In the declared multiplicity-one equivariant category, the invariant coefficient channel is the democratic ray $(1, 1, 1, 1)$.
C-COMP-01	Certified	N/A	The explicitly registered enhanced-symmetry/compensator candidates fail to produce the target hierarchy; this is a finite scan, not a classification theorem.
C-RES-01	Proved	N/A	The residue-incidence map has rank four on eight residue variables, so free residues can reproduce any positive quartet.
C-RUN-01	Certified	N/A	The displayed one-loop trajectory produces only order-one spread; it is an illustrative diagnostic, not an all-threshold theorem.
C-RANK-01	Proved	N/A	The banked parent kinetic metric has relative rank zero on the four channels; at least three independent splitting directions are required.
C-NOGO-01	Structural	N/A	The banked parent does not determine the four physical coefficient ratios inside the exact and finite domains printed above.
C-73-01	Proved	Conditional-readout	The $7/3$ trace normalization is forced; physical residue/LSZ attachment is open.

10 Limitations

- The compact gauge frame and one-generation dictionary are inputs to Paper C.
- The result is one-generation and does not derive $N_{\text{gen}} = 3$.
- The democratic ray is an ultraviolet/matching normalization, not equality of low-energy Yukawa couplings.

- Nonperturbative, composite, and new-sector dynamics are not excluded.
- No physical mass, kinetic normalization, or pole is produced without the downstream action and response maps.
- The 7/3 theorem does not rescue the within-generation coefficient hierarchy.

11 Conclusion

Paper C provides a clean stopping point. The exceptional cubic knows the one-generation tensor architecture and the democratic invariant line. It does not know the observed coefficient hierarchy inside the banked parent. That boundary is supported by exact group/linear-algebra statements and by finite diagnostics whose scope is printed explicitly. Any successful continuation must add a physically derived non-equivariant response, not another relabeling of the invariant cubic.

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v1.3 carry-forward: selector production, the H2 price, and the scoped selection frontier

Controlling statement

The Rev31 line closes a finite/internal selector parent action only at **complete-conditional** tier. Rev32 then hardens the surviving prices and closes the last refined-condition search direction only in the banked class and condition inventory. The ten-dimensional boundary object remains loaded; the six H2 coefficients remain an explicitly priced rank-two class; the nonlinear action shape remains an adopted, non-intrinsic principle; and continuum, pole and LSZ dynamics remain open. Nothing in this addendum promotes a particle observable.

1 Conditional parent-action closure

Within the frozen split-real 56-frame and the declared finite/internal loaded-profile class, the assembled selector parent action has a global minimum at

$$(j_*, q_* = \frac{3}{2}j_*, M_* = I),$$

with combined Hessian positive for every positive ρ, u_0, κ_d . The source backreaction coefficient is fixed at $+3/4$, and the projective source-ray witness has a one-dimensional kernel.

The action is conditional on one ten-continuous boundary object, represented equivalently as

$$[j] \iff L_\partial \iff E^* = \text{span}\{i_B j, \Omega i_B j\}.$$

These are three faces of one datum, priced once. The grammar itself cannot select its ray: $(F_B^{16})^{K_{\text{sel}}} = 0$, and $SO(16)$ is already transitive on the source sphere. By contrast, the dark ray is internally owned by the grammar. The incremental price of the complete finite selector is therefore

$$10 + 1 \text{ continuous,} \quad 0 \text{ independent discrete,}$$

namely the boundary object and one positive dark coupling. The two cold referees reported no disagreement on the closure volumes.

Closure fence

This is a local/finite selector action with a local Hamiltonian/Legendre attachment. It is not a continuum Hamiltonian, a four-dimensional field action, or an interacting residue. The boundary datum's physical selection remains open/loaded.

2 Dark detector and forced interior split

The active carrier is a twelve-copy $\text{Cl}(2, 1)$ module. The exact fibre law is

$$S_1(e^Y) = 54 \cos^2 \theta \left[\cosh\left(\frac{r}{\sqrt{6}}\right) - 1 \right],$$

and the unique top eigenspace of the grammar's detector is $\mathbb{R}W_0$. Thus the dark axis is derived from the grammar rather than named by the target.

The remaining interior split is also forced. The loaded-plane projector P_B fixes the $26 \oplus 10$ decomposition, while the transport defect

$$\Delta_T = [T_\phi, P_B] = [J_0, P_B]$$

fixes the complement. The commuting joint projectors generate all five selector eigenspaces at word degree at most two. This is a zero-incremental-price subspace result; it does not yet determine a unique nonlinear action.

3 Rank-character variational representation

Let $\Pi_1, \Pi_{32}, \Pi_{36}$ and $\Xi = \Pi_{10} - \Pi_{26}$ be the joint-defect projectors. The carrier character is exact:

$$R_B^{\text{char}} = \frac{1}{2}\Pi_{32} + \frac{2}{3}\Pi_{36}.$$

A bar-legal action can be written as

$$F_{\text{char}} = \frac{12}{54} \text{tr } P_B(M + M^{-1} - 2I) + \frac{1}{54} \langle y, \Xi y \rangle + \frac{1}{2} \langle y, \Pi_1 y \rangle, \quad M = e^{2Y},$$

with second variation exactly Q_T . Every displayed coefficient is traced to a carrier rank. This is a variational representation theorem; no microscopic principle selects F_{char} as the unique action.

4 Three tens, the adjoint wall, and the quadratic bridge census

Three ten-dimensional modules circulate near the selector and clause-27 interfaces, and equal dimension identifies nothing.

- The *physical/vector ten* is the $\mathfrak{so}(5, 5)$ vector inside the frozen 56 and has K_{dyn} Casimir $1/6$.
- The *selector ten* is isomorphic to that physical ten in the frozen carrier, also at Casimir $1/6$.
- The *boundary ten* is the adjoint module of K_{dyn} , has Casimir $1/4$, and is inequivalent to the other two.

Hence the direct boundary-to-physical/selector Hom vanishes, and the least linear intertwiner obstruction is $1/\sqrt{6}$.

The boundary adjoint is rigid: its equivariant endomorphism algebra is $\mathbb{R}I$, its invariant metric is unique up to scale, it has no invariant symplectic form, and its bracket is the unique invariant antisymmetric product. The lowest symmetry-respecting nonlinear bridge class is inhabited but sharply small:

$$\dim \text{Hom}_{K_{\text{dyn}}}(\text{Sym}^2 P, B) = 1, \quad \dim \text{Hom}_{K_{\text{dyn}}}(\text{Sym}^2 B, P) = 2.$$

These are census dimensions, not selected physical bridges. Any use must name which counted copy is chosen and price that choice. Every ten-claim in v1.3 names its ten.

5 WIN-OBSTRUCTED action shape and the adopted principle

In the declared rank-normalized character-completion class, the space of actions with a critical point at the base and positive-semidefinite Hessian is

$$\mathcal{S}^\circ/\text{Eq} \cong \mathbb{R} \times \text{int } \Delta^3.$$

Three Hessian-weight ratios and one nonlinear modulus survive. A nonnegative functional with vanishing two-jet generates inequivalent actions with the same Hessian Q_T ; exact second variation therefore does not select the nonlinear law.

The adopted clause

$$\Phi_{\text{diag}} : \quad v = 0, \quad w = 0, \quad u = t, \quad 27z = t$$

is minimal in codimension inside the minimal-word class, but it is not intrinsic: it identifies units on inequivalent generator lines, and independent rescaling moves the selected action. Track-2 records it as a declared structural principle, not as an output. Under a one-word enlargement the moduli increase from four to five and an additional condition is required; the obstruction is monotone under class enlargement.

6 Rev32 H2 rulings and coefficient independence

The Rev32 fold fixes the status of the remaining H2 leg without supplying coefficient values.

1. The boundary-condition family is ruled editorially: CLASS- ρ is primary; CLASS-W is retained only under the $C_4 = 0$ gate; CLASS-H is deferred.
2. The minimal H2 class is predeclared at rank two. Its standing price is exactly six continuous entries of $C_0 \in \text{Mat}_{3 \times 2}(\mathbb{R})$ plus one-map-for-all- η naturality.
3. Target-triviality is free, not another price: the D1214 forced-triviality theorem removes that clause from the input ledger.

The six-coefficient freedom is countermodel-grade independent at the frozen H2 tier. Two disjoint symbolic rank-two candidates pass all thirteen gates and thirty coefficient-blind controls identically; the independent house verifier passes 14/14. No banked selection polynomial separates the pair. This upgrades the earlier searched-and-did-not-find census to a scoped independence theorem. A future higher-tier microscopic S_{joint} may still derive the coefficients; the theorem does not quantify over such an object.

7 First finite OS subgate, and nothing stronger

The continuum staging map advances one finite step: a Gaussian Osterwalder–Schrader subgate and toy resolvent pass at conditional/finite tier, two-host byte-certified. It supplies no continuum limit, reflection-positive continuum measure, interacting pole, or LSZ residue; it is one checkpoint on the seventeen-stage map, not a continuum theory.

8 F-SEL(c): scoped negative closure

The last open refined-condition question asked whether a smaller condition family could derive Φ_{diag} rather than adopt it. Rev32 closes that question only against the banked class and condition inventory.

8.1 The universal cone claim is withdrawn

The old statement that inequalities cannot reduce dimension is false: degenerate inequalities can encode equalities. The replacement is specific. The presently banked non-degenerate positivity/stability inequalities have a strict interior point, so their feasible set is six-dimensional before projectivization and five-dimensional after it. They cannot select a ray. A new proposal that forces an everywhere-active degeneracy face must derive that face independently and clear the circularity bar.

8.2 Casimir-naturality refutes rather than selects

The lead non-circular candidate, $A = f(C_{K_{\text{dyn}}})$, is stated entirely from banked representation data. Its block spectrum makes P_{10} pure Casimir 1/6 while P_{26} is not Casimir-isotypic. On the literal carrier it forces $u = v = w = z = 0$; on the separately priced support-only reading it forces $u = v = w$ and $z = 0$. In either case Φ_{diag} is excluded except at the zero action. Casimir-naturality is therefore a refuter, not a selector, and it is itself an additional multiplicity-blind principle rather than a consequence of ordinary equivariance.

8.3 Scope and reopen condition

Across the filed inventory – categorical/invariance conditions, word minimality, ordinary equivariance, Casimir centrality, non-degenerate stability, degenerate faces, equal-weight and condition-number minimization, Ξ -blindness, trace normalization, and exact Q_T matching – no banked family selects Φ_{diag} non-circularly. Thus F-SEL(c) is closed negative at the current banked class and condition inventory. This is not a universal impossibility theorem. It reopens only when a genuinely new, independently derived invariant or condition family enters the corpus.

The action therefore remains word minimality plus the four Φ_{diag} relations at its printed price. Without the adoption, the enlarged class carries five projective continuous moduli. The live research selection frontier drops to the G_7 motivation; SEL-27 is a theorem-backed PI ruling, not an unresolved mathematical census.

Bottom line

Eigenspaces: forced at zero price. Weights: represented by a rank-character theorem. Nonlinear shape: not selected. H2 target action: forced trivial. H2 coefficients: six continuous entries plus naturality, independent in the frozen class. F-SEL(c): closed negative only in the banked inventory. Loaded content after the arc remains the boundary price, the adopted action-shape principle, and the unresolved declaration of the H2 coefficient class. Nothing is promoted.

9 Declared-class exclusion of the compact $r = 1/2$ point

Intersecting the compact two-scale ansatz

$$g_Q = g_u = g_d = c, \quad g_L = g_\nu = g_e = l$$

with the declared plane-preserving, coset-compatible, Standard-Model-invariant Gram family leaves only $l = c$. Therefore $r = l/c = 1$, and the previously priced point $r = 1/2$ is excluded in this class.

Three fences travel with the result. First, this is not the retired Rev19–24 two-scale calibration. Second, it is not the separate 7/3 trace/index theorem and changes no printed mass formula. Third, the class boundary was supplied by one lane and the house verified only the supporting first-order arithmetic; the result is class-conditional, not universal.

v1.3 source-sync. The retained rc2 Paper-C body remains authoritative for the loaded cubic, hypercharge projection, democratic ray, residue rank, and parent kinetic relative-rank obstruction. This addendum supersedes only the absent-parent-action and open-F-SEL(c) statements; the physical one-generation no-hierarchy conclusion is unchanged.

Paper D – Registered Supplement

Rev32.5 exceptional-frame phenomenology, comparator IDs, two-reading neutrino audit, and observation premises

Tom O’Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: **CONTESTED**, 3/8 retained, A1566 lane-adjudicated and PI ruling pending.

Abstract

This supplement is the controlling row-level registry for Track-2 v1.3. It re-sources the mixing, charged-lepton, $7/3$, neutrino-ratio, occupation, scale, observation, Route-B, Roman/clock, $AX6_{\text{pol}}$, and nuclear-interface rows to the sealed Rev32.5_S300 notebook. It freezes formulas, comparator IDs, dependencies, evidence state, failure conditions, and promotion gates. It does not convert compact algebra into a physical prediction. The θ_{23} provenance and dependent $|V_{cb}|$ attachment remain held at the sealed CONTESTED state pending PI ruling on A1566; the source tally remains $3/8$.

Publication role

Paper D is a registered supplement, not an independent results article. The machine-readable claim manifest is controlling wherever this paper abbreviates a locator, evidence field, or supersession chain.

1 Registry rules

A live row is complete only if it carries a stable ID; exact wording; mathematical status; physical attachment or N/A; evidence state; lifecycle; dependencies; source/release locations; and supersession. Agreement is descriptive and never evidence for the substrate. A route, branch, ordering, octant, exponent, or numeral chosen after looking at a comparator caps the physical row at the corresponding loaded/selected tier even when the surviving expression is exact.

2 Input and selector inventory

Object	Registry status		Role and fence
ϕ	Proved	N/A	Mathematical constant used by the registered formulas.
J_{vac} spectrum	Structural	Loaded-correspondence	$\{\phi, 1, \phi^{-1}\}$ up to permutation. Algebraic and variational Route-B theorems are distinct; the ordered physical frame remains loaded.
Compact G_{SM} frame/B-map	Input	Loaded-correspondence	Physical labels, hypercharge dictionary, and boundary of the one-generation readout.
Route B	Input	Loaded-correspondence	First-row readout route. The $1/\sqrt{6}$ weight is exact, but the route preference was data-selected.
$AX6_{\text{pol}}$	Input	Conditional-readout	Polarization postulate $\Lambda_{\star} = 3P/Q(Y) = 6\phi - 1$. The Det^2 object is distinct and retired as its selector.
Normal ordering	Input	External-input	Benchmark ordering; additionally ladder- and interface-conditional.
Dirac neutrino branch	Input	Loaded-correspondence	Benchmark choice; Majorana requires a $\Delta(B-L) = 2$ source and dependency re-audit.
m_{τ}	Input	External-input	Charged-lepton dimensional anchor.
Koide $K = 2/3$	Input	External-input	Empirical electron closure rule.
$ \lambda\mu = 1$	Input	Conditional-readout	Declared grade-four response premise; $\sqrt{2}$ remains allowed, zero response declined, $\tau = \pm 1$ unselected.
Basepoint subgroup symbol	Input	N/A	Declared placeholder only; no subgroup is selected.
Boundary object and H2 class	Input	Loaded-correspondence	Finite parent-action prices remain explicit; no microscopic coefficient law is inferred from the registry.

3 Mixing registry

ID	Expression	Status / attachment	Controlling caution
D-MIX-H	$V_{\text{CKM}} = I$ at structural dynamics layer	Structural / N/A	Nontrivial mixing is a loaded readout-layer controlled defect, not engine-derived mixing.
D-MIX-01	$\tan \theta_{12} = \sqrt{3}/\phi^2$	Proved / Conditional-readout	Normal ordering is assumed; the row is additionally conditional on the Structural R_d ladder and on the undeclared ladder-to-propagation-eigenstate interface. Solar comparator remains 0.66σ .
D-MIX-02	$\sin^2 \theta_{23} = 7/16$	CONTESTED HOLD / Conditional-readout	Internal mismatch theorem retained; physical octant provenance adjudicated A1566 (lane), PI ruling pending; v1.3.1 will carry the ruling. Sealed 3/8 tally retained. Live 2.3σ pressure stays beside the row.
D-MIX-03	$\sin^2 \theta_{13} = \sin^4(\pi/8)$	Structural / Conditional-readout	Round-trip/exponent-two readout is not forced.
D-MIX-04	$\delta_{\text{CP}} = -2\pi/\sqrt{5}$	Proved / Conditional-readout	Orbit-time theorem plus loaded frame, normal ordering, Structural R_d ladder, undeclared propagation-eigenstate interface, and Dirac benchmark.
D-MIX-05	first-row weight $1/\sqrt{6}$	Proved / Loaded-correspondence	Exact weight. Exact-framework readout $0.225247, +1.11\sigma$ (SL-11); measured-angle diagnostic $0.22687, +3.01\sigma$ (SL-11). Route preference remains data-selected.
D-MIX-06	$ V_{cb} = 1/(9\sqrt{7})$	Structural / Loaded-correspondence, held	$0.041996, +1.00\sigma$ (SL-13). Factor 9 lacks a forcing theorem; A1566 dependent-tier ruling is PI-pending.
D-MIX-07	$ V_{ub} = V_{us} V_{cb} /\sqrt{6}$	Structural / Loaded-correspondence	$0.003862, -0.17\sigma$ (SL-12); inherits first-row loading.
D-MIX-08	$\arctan \sqrt{3(\phi + 5\phi^{-5})}$	Structural / Loaded-correspondence; Coincidence-class	$68.1297^\circ: +1.41\sigma$ global (SL-19), $+0.64\sigma$ direct (SL-20). Candidate construction only; G_7 motivation absent and step (B) circular as selection derivation.

Binding hold

The v1.3 polished series does not decide the θ_{23} conflict. It mirrors the sealed source: CONTESTED and 3/8. A1566 is recorded as a lane adjudication awaiting PI ruling; its proposed 2/8 tally is not installed here.

Canonical CKM sentence

The CKM first row is Loaded; $|V_{cb}|$ is Structural at the sealed hold; δ_{CKM} is Coincidence-class.

4 Neutrino mass-ratio readings

4.1 D-NU-R1-01: literal $d = 1$ reading

Reading the Jordan-adjoint carrier eigenvalues literally as masses gives

$$\frac{\Delta m_{21}^2}{\Delta m_{31}^2} = 0.27639,$$

against the registered 0.03002 benchmark. This is the genuinely falsified literal-mass row. The object remains valid as a mixing carrier; the mass predicate is withdrawn.

4.2 D-NU-R2-01: selected $d = 2$ edge reading

The selected neutrino rung gives

$$R_2 = \frac{1}{\phi^4 - 1} = 0.17082, \quad R_2^2 = 0.02918.$$

Against the corrected NuFIT mass-splitting inputs (SL-01–SL-03), R_2 lies 1.44–1.79 σ below the $m_1 = 0$ normal-ordering floor. The row is a fixed below-floor edge target, printed as a tension, not a mass relation and not a hit. The assignment $d(\nu) = 2$ is selected/post-hoc, is the best injective assignment by $\Delta\chi^2 = 17.8$, carries a 10.9–13.9% local-band look-elsewhere rate, and receives no blind credit. The values $\Sigma m_\nu = 58.79$ meV and $m_\beta = 8.74$ meV are properties of the $m_1 = 0$ boundary, not consequences of R_2 .

5 Yukawa, charged-lepton, and weak-angle registry

5.1 Tree-level top carrier

The same-block Peirce carrier extracts the middle eigenvalue and yields $y_t(M_{\text{Pl}}) = 1$ at tree level. The literal one-generation SM Yukawa is the cross-block $16 \times 10 \times 16$ trilinear. Measured v_{EW} , running, and scheme matching remain separate attachments.

5.2 Muon-to-tau row

$$\frac{m_\mu}{m_\tau} = \left(\frac{\phi}{\sqrt{5}} \right)^{8/3} \frac{\sqrt{2}}{10} = 0.059684.$$

D-LEP-01 is STRUCTURAL / *Loaded-correspondence* / REPRODUCED. The coefficient required by data is 0.140900, against $\sqrt{2}/10 = 0.141421$; +0.37% is the multiplicative coefficient gap. With measured m_τ , the formula gives 106.05 MeV. QED matching is external field theory.

5.3 Electron row

D-LEP-02 is Koide-consistent under external empirical $K = 2/3$ after the QED-corrected muon chain. It is not an internal derivation from $J_3(\mathbb{O}_s)$.

5.4 D-AX6-01: AX6_{pol} and the Det² object

AX6_{pol} is the independent postulate

$$\Lambda_\star = 3P/Q(Y) = 6\phi - 1,$$

with readout $3/(4 + \Lambda_\star) = \phi^{-3}$. The degree-six condition $\cos(6\psi) = 1/2$ and its 50° branch form the distinct Det² object. It is retired as a selector of AX6_{pol}, and A667 applies only to it. The readout identity does not derive the polarization postulate or the scheme-dependent matching scale.

6 Vacuum selector, 7/3, occupation, and scale

ID	Status / attachment	Controlling statement
A-VAC-01	Structural / Loaded-correspondence	Algebraic conditional selector: the positive spectrum is $\{\phi, 1, \phi^{-1}\}$ up to permutation under its named premises; ordered frame loaded.
A-VAC-02	Proved / N/A	Variational Route-B theorem inside positive golden-field units; outputs $\det G = 7$ but no physical selector.

ID	Status / attachment	Controlling statement
D-73-01	Proved / Conditional-readout	Exact trace/index 7/3; pole/residue and low-energy heavy-quark attachment remain open.
D-OCC-01	Structural / Loaded-correspondence	Loaded occupation support $\{0, 3, 11, 17\}$; no grammar-only selector may be read as an individual-rung derivation.
D-CHI-01	Certified / N/A	Exact single- χ additive mass-ratio completion is refuted.
D-SCL-COUNT	Proved / N/A	One abstract positive central scale class inside the declared winding architecture.
D-SCL-ANCHORS	Input / External-input	Three empirical anchors are actually consumed: m_τ , v_{EW} , and Λ_{G_2} .

7 Observation and carrier-arc registry

ID	Status / attachment	Controlling statement
F-CARR-01	Certified / Conditional-readout	Six-face finite carrier ledger; face 2 is restricted to the locked thirty-row universe and face 6 remains the output gate.
F-ODD-01	Structural / Conditional-readout	Covariant odd response class is inhabited; shell-exchange tor-sor/orientation is unselected.
F-NORM-01	Certified / N/A	$ \lambda \leq \sqrt{2}$, $ \mu \leq 1$, and the forty-row normalization census contains zero forcing rows; rank-two support is tier-local.
F-RESP-PREM-01	Input / Conditional-readout	$ \lambda\mu = 1$ is declared, not derived. $\sqrt{2}$ is allowed but not adopted; zero response declined; $\tau = \pm 1$ remains unselected. Neither Π_{full} nor CKM is constructed.
F-BASEPOINT-01	Input / N/A	The basepoint is a declared placeholder. No subgroup is selected by it.
D-OBS-01	Structural / N/A	Physical microscopic support restoration and the mass/generation observation map remain open.

8 Roman/clock and source-apparatus registry

ID	Status	Controlling statement
A-ROMAN-Z2-01	Certified / N/A	Finite strong-form count identity obstructed. The source's 17/17 output is historical; exactly fifteen predicates are computed.
A-ROMAN-Z2-02	Structural / N/A	Refined orientation-parity interface is descriptively compatible but unconstructed; the two $\mathbb{Z}_2$ actions are not identified.
G-SRC-01	Structural / N/A	Rev32.5 comparator rows are cited by stable S302 sidecar ID; exact source TeX, ledger, resolver, and audits ship with the release.

9 Nuclear interface rows

ID	Status	Controlling statement
E-ANN2-01	Certified / N/A	Direct connected-Markov and perturbative annular repair are closed negative only in the tested class; packing/coordination is the surviving reopen class.
E-IS0-01	Input / Loaded-correspondence	$\chi = \phi^{-6}T_3$ is selected on fixed- Z chains; no derived $SU(2)$ isospin action is registered.
E-NP-01	Input / N/A	$m_n - m_p = 1.2933$ MeV remains unpriced; the e_7 conjugation carries no energy.

10 Failure and demotion register

Family	Failure condition	Required disposition
Mixing correspondence	Physical action/diagonalization fails, or live angle/phase targets are excluded.	Retain internal identities; remove physical-angle attachment.
A1566 hold	PI rules the octant registration or the dependent $ V_{cb} $ cap.	Issue v1.3.1 and propagate the ruling; do not silently alter v1.3.
Neutrino R_2 edge	Inverted ordering, $m_1 \gtrsim 1$ meV, or a predeclared alternative assignment wins.	Remove the edge reading; retain the real ladder as a structural object.
AX6 _{pol}	No first-principles selector or matching-scale law is found.	Keep Input/Conditional-readout; never revive the Det ² object as its proof.
Annular repair	An outside-class localized operator derives the required negative coefficient.	Reopen only the scoped negative, not the protocol ledger.
Isospin	A registered $SU(2)$ action and coefficient are derived.	Replace the loaded row and rerun nuclear magnitude gates.
Response premise	Microscopic dynamics fixes $ \lambda\mu $ and τ .	Replace the declared premise only after a source-law audit.
Basepoint	A theory-selected subgroup/basepoint is constructed.	Replace the placeholder and rerun the physical observation/output gate.

11 Conclusion

The v1.3 registry is deliberately asymmetric. It updates exact comparator readouts and source IDs, but it holds the unresolved θ_{23} provenance. It records one genuinely falsified neutrino reading and one selected below-floor edge reading. It separates AX6_{pol} from the retired Det² object, narrows the nuclear negative to its tested class, and states that the response amplitude and basepoint are declared rather than derived. Those are not weaknesses hidden in footnotes; they are the controlling publication claims.

Paper E – Nuclear Cluster Protocol and Statistical-Hardening Plan

Finite cluster functor, corrected seventeen-plus-one ledger, scoped annular negative, packing reopen class, loaded isospin, and unpriced neutron–proton split

Tom O’Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: **CONTESTED**, 3/8 retained, A1566 lane-adjudicated and PI ruling pending.

Abstract

The source golden-fusion-category construction prices dimensionless nuclear binding ratios from hydrogen through calcium. The corrected tally is seventeen sharp passes plus one typed obstruction, ^{28}Si , whose 0.334% residual passed the 1% pre-answer bar and entered the later 0.1% refinement gate on the obstruction branch. The same finite programme records the Hoyle-state pass, eleven sign/stability calls, two glueball-band entries, and a closed-form composition ladder with two blind vault matches. The protocol is the scientific content: bars were frozen before answers, no threshold moved, a compromised blind was voided, and the construction freedoms are printed beside the scores. The scale census permits one positive central class within the declared winding architecture; its value is external, and $v_{\text{EW}}/\sqrt{\sigma}$ remains a mandatory derivation threat. Charge magnitudes, the two-circulation sector, the $A = 8$ breathing naturality square, shell structure beyond $\{2, 8\}$, and the continuum/Yang–Mills functor remain open.

Two-axis provenance.

Every load-bearing row carries two independent labels. The *mathematical status* is exactly one of Proved, Certified, Structural, Input, or Historical. The *physical attachment* is exactly one of Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, or External-input; N/A is a registry sentinel only for claims with no physical-observable attachment. An exact algebraic theorem does not become a physical prediction merely because its formula is exact. Caution tags and lifecycle states are stored in separate fields.

Publication evidence boundary.

Evidence state is orthogonal and uses six controlled values: analytic-in-text, source-certificate-shipped, source-certificate-not-shipped, external-source, registry-only, or open/no-artifact. Every externally active Proved or Certified claim requires a complete inspectable proof in the paper or a content-addressed public artifact and an independent verifier.

1 Scope and one-line result

The working finite machinery is the Fibonacci quotient with $f_4 = 0$, the exhibited functor F_φ , and a closed menu of φ -monomial morphism weights. The source result is:

From hydrogen to calcium, seventeen scored binding energies land inside their pre-frozen sharp bars; ^{28}Si is a typed first-circulation obstruction rather than an ordinary miss; the Hoyle resonance passes its frozen bar; eleven sign/stability calls are correct; and the $n\alpha$ ladder closes into a trace formula whose sealed T_5 and T_9 values were matched blind.

All displayed binding values are dimensionless ratios to $\sqrt{\sigma}$. The imported string-tension value is used only to express MeV. No fine-structure constant is used as a hidden Coulomb fit.

2 The finite functor and morphism menu

The functor acts schematically as

$$F_\varphi([N]) = \tau^{\otimes N}, \quad F_\varphi(\text{mirror}) = \dagger, \quad F_\varphi(f_4) = 0.$$

The source generator check reports the involution, braid relation, mirror-inversion laws, and the relevant spectrum at the quoted machine precision.

The banked menu contains:

- the two-body Fibonacci singlet bridge of weight φ^{-11} ;
- the closed α -cell from $f_4 = 0$;
- the triple- α associator that survives while the four-strand channel dies;
- Borromean Y and halo-dual Y' junctions;
- leg-local endpoint rules for odd lines;

- half-tick and fused-pair charge generators;
- the universal annular defect φ^{-18} ;
- the breathing generator $\Delta_{\text{br}} = \varphi^{-15} - \varphi^{-18}$.

No generator was added after the S226 freeze.

3 The $A \leq 4$ kernel and its freedom count

The source kernel was filed before the scored values:

$$\frac{B(A, Z)}{\sqrt{\sigma}} = \varphi^{-11} \binom{A}{2} + 2\varphi^{-2} \binom{A}{3} + \varphi^3 \binom{A}{4} - \frac{1}{2\varphi} \binom{Z}{2}.$$

The deuteron is the two-body term; ${}^3\text{H}$, ${}^3\text{He}$, and ${}^4\text{He}$ satisfy their frozen 1% bars in the source ledger.

The freedom audit is part of the claim. Three new φ -coefficients were introduced and scored on three new nuclei, giving triangular saturation rather than blind overdetermination at $A \leq 4$. The discriminating tests begin at $A \geq 5$, where the formula continues without a new binomial coefficient.

4 Choice-free gap and typing consequences

4.1 The $A = 5$ gap

Because $f_4 = 0$ closes the α -cell, a fifth nucleon is an external τ -line with no scalar channel. The source sign calls are

$$S_n({}^5\text{He}) = -\varphi^{-12} < 0, \quad S_p({}^5\text{Li}) = -\frac{2}{3}\varphi^{-12} < 0,$$

both correct.

4.2 The $A = 8$ gap

The pair $\alpha \otimes \alpha = 1 \otimes 1$ exposes no bridgeable τ -line. The leading ${}^8\text{Be}$ correction is the repulsive virtual annulus $-\varphi^{-18}\sqrt{\sigma}$, giving the correct unbound sign and the frozen marginality classification. Carbon can nevertheless form through the surviving three-strand associator.

These are finite categorical consequences, not a nuclear potential or shell-model derivation.

5 Bridged and Borromean systems

The source menu assigns distinct topological structures to ${}^6\text{He}$, ${}^6\text{Li}$, ${}^7\text{Li}$, ${}^7\text{Be}$, ${}^8\text{Li}$, ${}^8\text{B}$, ${}^9\text{Be}$, and ${}^9\text{B}$. The main scientific point is typing rather than post hoc coefficient flexibility: pairwise-unbound constituents can bind through a closed-cell annular cap or a Borromean junction, while the mirror and endpoint rules generate sign-sensitive corrections from the same finite menu.

The known weak flank is charge magnitude. The source signs and counts are strong, but the baseline magnitude estimates for $S_p({}^9\text{B})$ and $S_p({}^8\text{B})$ miss by factors about 1.29 and 2.60. No charge-magnitude closure is claimed.

6 The closed-form composition ladder

For the $n\alpha$ family, the source packages the composition contribution as

$$T_n = (n - 2) + \text{tr}_\varphi(R_n).$$

The exact matrix representative is source-defined; Track-2 uses the trace invariant, not an inferred continuum Hamiltonian. Two sealed values are the strongest prospective evidence in this subsection:

- the T_5 implied value matched φ^2 at 26 parts per million;
- the T_9 implied value matched $7 + \varphi^{-4}$ at 0.10%.

A third blind application reproduced the banked ${}^{40}\text{Ca}$ rule.

7 The corrected nuclear ledger

System	Source formula / rule	Residual	Frozen status
deuteron	φ^{-11}	0.52%	1% sharp
^3H	$A \leq 4$ kernel	0.77%	1% sharp
^3He	$A \leq 4$ kernel	0.10%	1% sharp
^4He	$A \leq 4$ kernel	0.16%	1% sharp
^6He	$B_\alpha + \varphi^{-13} + \varphi^{-18}$	0.0039%	1% sharp
^6Li	$\varphi^{-11}(7 + 8\varphi^{-2} + \varphi^3)$	0.11%	1% sharp
^7Li	$\alpha + t$ bridge $+\Delta_{\text{br}}$	-0.0074%	0.25% sharp
^7Be	mirror bridge $-3\varphi^{-18} + \Delta_{\text{br}}$	+0.076%	0.25% sharp
^8Li	endpoint rule, pass-2 filing	0.0027%	1% sharp
^8B	endpoint rule $\varphi^{-18} + \varphi^{-19}$	0.0049%	1% sharp; charge magnitude open
^9Be	$2B_\alpha + \varphi^{-12}$	0.18%	1% sharp
^{12}C	$3B_\alpha + T_3$	0.10%	1% sharp
^{16}O	$4B_\alpha + 2T_3$	0.17%	1% sharp
^{20}Ne	$5B_\alpha + \varphi^2 T_3$	0.00031%	1% sharp
^{24}Mg	$6B_\alpha + 4T_3$	0.37%	1% sharp; worst untyped
^{28}Si	$7B_\alpha + (5 + \varphi^{-2})T_3$	0.334%	typed obstruction; 1% pre-answer bar passed
^{32}S	$8B_\alpha + (6 + \varphi^{-3})T_3$	0.024%	1% sharp
^{40}Ca	$10B_\alpha + (8 + \varphi^{-5})T_3$	-0.032%	1% sharp; blind rule application
Hoyle	$(\varphi^{-15} + \varphi^{-18})\sqrt{\sigma}$	6.2%	frozen 10% pass
0^{++} glueball	$\sqrt{8\pi \log \varphi}$	in band	draft tier
$2^{++}/0^{++}$	source ratio rule	in band	draft tier

The binding-energy tally is therefore seventeen sharps plus one typed obstruction. The glueball rows and the Hoyle row are separate scored categories and do not alter that count.

8 Why ^{28}Si is a typed obstruction

The scoring sequence is fixed by receipts:

1. the pre-answer bar in D1060 was 1%; the 0.334% result passed;
2. the later 0.1% refinement gate in D1061 was frozen before application and explicitly allowed either a 0.1% result or an honorable “irreducible at this order” obstruction with the missing operator named;
3. A1357 took the obstruction branch;
4. the claimed missing object is a second-circulation operator.

Thus the row is not retroactively converted into a miss. For journal activation, however, the source-typed obstruction also requires a public irreducibility certificate over the complete frozen first-circulation operator class. A first-circulation correction that removes the residual would refute the claim.

9 Protocol, blindness, and statistical caution

The protocol claims are as important as the numbers:

- accuracy bars were hash-frozen before the corresponding answers;
- ten consecutive scored rounds made zero threshold moves;

- the T_5 , T_9 , and ^{40}Ca applications were blind or sealed in the source process;
- one compromised blind window was voided rather than counted;
- one process deviation was audited and a pass-2 filing designated official;
- one in-house prose slip was corrected on the record;
- the $A \leq 4$ coefficient saturation and the later zero-freedom continuations are stated explicitly.

This is not a conventional global likelihood or a multiple-testing-corrected discovery claim. The protocol supports the narrower assertion that the printed finite menu was exposed prospectively to a sequence of frozen tests and that failures were typed rather than silently refit.

10 Statistical-hardening contract

The frozen-bar record does not by itself supply a global significance statement. A publication-active result must add, before inspecting any new target:

1. a null ensemble over the complete allowed φ -menu and topology-assignment rules;
2. a conventional baseline model with a matched or explicitly penalized freedom count;
3. a predictive scoring rule, uncertainty propagation, and the treatment of correlated nuclei;
4. family-wise or false-discovery control for the number of formulas, assignments, and gates explored;
5. a model-complexity penalty and an untouched external holdout.

The output should report both the protocol score and the comparison against the null/baseline. A sub-percent residual is not, by itself, evidence for the finite category when the model-selection denominator is unknown.

11 Prospective external-prediction gate

The next nuclear round must freeze a target outside the inspected construction range and publish, before unblinding: the isotope or observable, categorical object assignment, exact formula, all coefficients, uncertainty prescription, success bar, failure interpretation, source hash, and timestamp. The preferred target should exercise charge magnitude, the second-circulation sector, the $A = 8$ breathing square, or shell structure beyond $\{2, 8\}$. A miss at the precommitted bar, a post-unblinding topology reassignment, or no predictive advantage over the matched baseline is an honest loss.

12 Public evidence and receipt contract

A reproducible Paper E release must ship the frozen formula ledger, measurement snapshot, precommit hashes, timestamped receipts, blinded vault files, the compromised-window void record, the pass-2 adjudication, the complete menu of formulas/topological assignments considered, exact calculation code, and independent recomputation. The present package reports those objects from the source record but does not contain the complete receipt and data bundle; all scored rows therefore have evidence state *source-certificate-not-shipped*.

13 The one-scale registry as a threat

The finite winding architecture admits one positive central scale class,

$$\dim H^2 = 1.$$

The operational source registration is $\sqrt{\sigma}/m_e = 870.843277$ with the quoted source uncertainty, and the sealed null guard finds no simple φ -menu expression within 1%.

One-input falsification clause. The count is theorem-level only within the declared winding-category census. The numerical scale is measured. $v_{\text{EW}}/\sqrt{\sigma} = 553.3026$ is a mandated-derivable obligation, not an achievement. A second independent underivable dimensionful ratio kills the one-input chain.

The scale class does not cure the charge-magnitude sector and does not turn the finite cluster menu into a continuum field theory.

14 Open flanks

- charge magnitudes and a charge-coherence kernel;
- the second-circulation operator indicated by ²⁸Si;
- the unchecked $A = 8$ breathing naturality square;
- shell structure and magic numbers beyond the native $\{2, 8\}$;
- a continuum/Yang–Mills functor;
- one new sealed prediction outside the construction range, preferably exercising the charge or two-circulation flank.

15 Claim map

Claim ID	Math status	Attachment	Current sentence / lifecycle gate
E-FUN-01	Certified	Loaded-correspondence	The exhibited F_φ functor and frozen generator menu define the finite cluster kernel.
E-KER-01	Structural	Loaded-correspondence	The $A \leq 4$ kernel is triangularly saturated; later continuations carry the prospective weight.
E-GAP-01	Certified	Conditional-readout	The $A = 5$ and $A = 8$ sign calls follow from the frozen closed-cell typing.
E-LAD-01	Certified	Loaded-correspondence	$T_n = (n - 2) + \text{tr}_\varphi(R_n)$ is the source finite trace ladder, with sealed T_5 and T_9 matches.
E-LED-01	Certified	Loaded-correspondence	The source ledger contains seventeen sharp binding rows, worst untyped 0.37%, plus one typed obstruction; no global likelihood is claimed.
E-SI-01	Certified	N/A	²⁸ Si is source-typed as irreducible at first circulation order; journal activation requires the complete operator-class certificate.
E-HOY-01	Certified	Loaded-correspondence	The Hoyle row passes its frozen 10% bar.
E-CHG-01	Structural	N/A	Charge signs and counts are source-strong; magnitudes remain an open lifecycle object.
E-SCL-COUNT	Proved	N/A	One positive central scale class is counted within the declared winding architecture.
E-SCL-VALUE	Input	External-input	The numerical scale registration is measured.
E-SCL-KILL	Structural	N/A	A second independent underivable dimensional ratio falsifies the one-input chain.
E-YM-01	Structural	N/A	No continuum/Yang–Mills functor is supplied; the lifecycle state remains open.
E-PROS-01	Structural	N/A	Publication evidence requires one untouched external prediction with a frozen formula, bar, and matched statistical baseline.

16 Nonclaims and conclusion

Paper E does not yet supply a conventional discovery-level statistical analysis and does not solve a Clay problem, derive a continuum nuclear field model, derive charge magnitudes, derive an absolute scale, or predict shell structure

beyond the stated finite objects. Its publication value is more specific: a fixed finite menu was subjected to pre-frozen tests, the receipts and freedom counts are visible, and the one serious in-range defect is typed as a missing operator rather than repaired by retuning. The next persuasive step is a genuinely prospective external prediction, not another refinement of an inspected nucleus.

References

- [1] M. Wang et al., “The AME 2020 atomic mass evaluation (II). Tables, graphs and references,” *Chinese Phys. C* 45 (2021) 030003.
- [2] L. H. Kauffman and S. L. Lins, *Temperley–Lieb Recoupling Theory and Invariants of 3-Manifolds*, Princeton University Press (1994).
- [3] SGTOE Rev32.5_S300 Paper 9 and Appendices O/X, supplied source artifact.

v1.3 Addendum: scoped annular negative, packing reopen class, and loaded isospin

Controlling statement

The seventeen sharp binding-energy rows, one typed ^{28}Si obstruction, Hoyle result, sign calls, trace ladder, and protocol receipts carry forward unchanged. Rev32.5 narrows the unresolved physics: the direct connected-Markov-second-moment and perturbative annular repair classes are closed negative; the surviving 6–7 cell reopen class is packing/coordination; charge magnitudes remain open; isospin is loaded; and $m_n - m_p$ is unpriced. No observable, threshold, or tier is promoted.

1 The ^{28}Si obstruction and the tested repair class

The first-circulation ledger leaves a 0.334% residual for ^{28}Si . It passed the pre-answer 1% bar and entered the frozen refinement gate through the allowed obstruction branch; it is therefore neither a sharp nor a miss at that bar.

A mirror-odd annular circulation and its connected normalized Markov second moment were constructed. That construction does not supply the required physical correction. The canonical connected second moment is non-negative, while the $n = 6, 7$ binding correction must be negative; the ribbon full-twist identity also forbids an exact switch-off at $n = 8, 9, 10$. The coefficient in T_3 units remains open, so the finite $0.02T_3$ support threshold is not scored.

E-ANN2-01 – scoped certified negative

The direct connected-Markov-second-moment repair class and the perturbative annular attachment are closed negative in the class actually tested. This is not a global no-go against every localized or nonperturbative operator. The minimum reopen package remains the source-suite specification.

2 Surviving reopen class

The deficit is not a framing or ribbon-twist effect: the relevant ribbon phase is trivial at six cells, no clock residue class singles out $\{6, 7\}$, and the independently rebuilt Fibonacci fusion-path profile stays approximately flat while the deficit collapses by an order of magnitude. The surviving class is therefore

packing/coordination of six to seven cells

in the writhe/cluster sector, not “annular second order.” The mechanism, coefficient, and energy map remain open.

3 Charge magnitude and isospin

Charge-magnitude flank

Charge signs and counts remain the strong part of the ledger. Charge magnitudes do not: the baseline proton-separation rows require configuration-dependent factors, and the $N = Z$ failure at ^{64}Ge combines radius and screening debts. The phrase “coherence multiplies by ϕ ” names a candidate mechanism but does not compute it.

E-IS0-01 – Loaded isospin

The fixed- Z chain uses the selected coefficient $\chi = \phi^{-6}T_3$. The registered $u \leftrightarrow d$ operation is the split-octonion conjugation $e_7 \mapsto -e_7$, a $\mathbb{Z}_2$ parity rather than a derived $SU(2)$ isospin action. The Peirce $1/2$ is scalar on the relevant blocks and gives $\chi = 0$. The isospin sector is therefore INPUT / *Loaded-correspondence*, not a derived magnitude law.

E-NP-01 – neutron–proton row unpriced

The observed $m_n - m_p = 1.2933\text{ MeV}$ is not priced by the registered machinery. The framework carries a Coulomb/QED contribution with external α , but no QCD half: $m_u = m_d$ at the constituent baseline and the e_7 flip carries no energy. Without a derived flip energy the sign is wrong. The row remains INPUT / UNPRICED and is not counted as a prediction.

4 Failure and reopen conditions

Object	What would change the present status
Direct annular repair	An operator outside the tested connected-Markov/perturbative class with a derived negative energy coefficient and the correct $n = 6, 7$ localization.
Packing/coordination	A predeclared cell-geometry law that generates the deficit profile without fitting the target rows.
Charge magnitudes	A configuration-dependent coherence/screening map with fixed normalization and successful held-out rows.
Isospin	A registered $SU(2)$ or equivalent action and a derived coefficient replacing the selected $\phi^{-6}T_3$ rule.
Neutron–proton split	A derived energy for the e_7 conjugation or another source of the missing QCD sign and magnitude.

5 Publication-safe sentence

Paper E records seventeen sharp pre-frozen binding-energy passes and one typed ^{28}Si obstruction. The direct annular second-moment repair is closed only in its tested class; packing/coordination is the surviving reopen class. Charge magnitudes remain open, the isospin coefficient is loaded, and the neutron–proton mass difference is unpriced.

Technical Appendix F – Finite Cartan State and OMOS Observation Functor

Cartan carrier, positivity, clock and golden bridge, Roman/clock semantic split, and the Rev32.5 six-face carrier arc

Tom O’Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: **CONTESTED**, 3/8 retained, A1566 lane-adjudicated and PI ruling pending.

Abstract

Rev28 Appendix T separates the geometry, measure, and observation layers that had previously been conflated. The signature chart and shell reversal are distinct operators; a four-dimensional Cartan carrier closes inside the Albert signature sector; a MacDowell–Mansouri action is available as a candidate for that sector; and the pure Euclidean Einstein/MacDowell–Mansouri quadratic form has a conformal/sign obstruction. At finite regulator, however, a normalized reflection-positive heat-kernel–Haar state and a positive nonlinear simplicity measure exist. The same arc constructs the observation functor OMOS from an ordered state pair: the relative modular score is D_φ , unital complete positivity fixes the scale, the induced effects form an exact POVM, the minimal Stinespring dilation is unique, and Pin/OS evenization leaves the positive spectral calculus. The composite is unique under seven printed premises and has no continuous modulus. What remains open is upstream and physical: the microscopic theory has not selected OMOS; the full placement/loading map is not the supported observation quotient; the faithfulness kernel is not computed; the one-particle gap is not an interacting pole; and Einstein universality is untested.

Two-axis provenance.

Every load-bearing row carries two independent labels. The *mathematical status* is exactly one of Proved, Certified, Structural, Input, or Historical. The *physical attachment* is exactly one of Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, or External-input; N/A is a registry sentinel only for claims with no physical-observable attachment. An exact algebraic theorem does not become a physical prediction merely because its formula is exact. Caution tags and lifecycle states are stored in separate fields.

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1 Scope and separation of operators

The source geometry arc retires the ambiguous label “ W ”. The compact/split Wick chart W_{sig} preserves the Kaluza–Klein grading, while the shell reversal S_{shell} reverses it:

$$W_{\text{sig}} D_{\text{KK}} W_{\text{sig}}^{-1} = +D_{\text{KK}}, \quad S_{\text{shell}} D_{\text{KK}} S_{\text{shell}}^{-1} = -D_{\text{KK}}.$$

They are categorically different. The source computation further reports that no third triality cascade exists and that the two signature sheets are not glued at the real F_4 tier; they are two real structures inside one complexified Albert fibre. These results organize the carrier but do not create a physical spacetime by themselves.

2 Four-dimensional Cartan carrier and candidate action

Inside the Albert signature sector, the registered projector Π_{sig} , trace metric, and connection family close a compact $\mathfrak{so}(5)$ carrier. The four physical directions are the Cartan/solder sector of an S^4 -type geometry, while the internal fifth direction is a carrier direction rather than a declared Kaluza–Klein spacetime coordinate. Triality acts as the imaginary-unit structure needed to pass between the two real sheets.

A MacDowell–Mansouri-type action can then be written for this sector, schematically

$$S_{\text{MM}}[A] \propto \int \text{tr}(\Gamma F[A] \wedge F[A]),$$

with the symmetry-breaking/soldering data carried by the registered Cartan structure. The source licenses this only as a **Structural candidate**: it is not the full particle, gauge, Yukawa, mass, or observation action.

2.1 Conformal-mode obstruction

For a conformal metric $g_{\mu\nu} = e^{2\sigma} \delta_{\mu\nu}$, the source exact computation gives

$$R = e^{-2\sigma} (-6\Box\sigma - 6|\nabla\sigma|^2), \quad \sqrt{g} R = \text{div} + 6e^{2\sigma} |\nabla\sigma|^2,$$

so the Euclidean Einstein term contributes a negative conformal kinetic direction in the conventional weight. This is the continuum counterpart of the finite-algebraic sign problem below. It identifies the missing object precisely: a reflection-positive contour, regulator, or measure controlling the conformal direction together with the constraints.

3 Finite-regulator reflection-positive state

At finite Cartan regulator, the source constructs

$$\mathcal{M}_{\Lambda,t}^{\text{Cartan}}$$

as a normalized heat-kernel $\times$ Haar product on $\text{Spin}(5)$ edges. The solder is typed discretely from the edge variable, and OS reflection positivity follows from nonnegative Peter–Weyl coefficients and the crossing split. The truncated-kernel Gram matrices are source-reported as strictly positive at the tested values $t = 1/2$ and $t = 1$, and a positive transfer operator exists.

Finite-regulator existence. A normalized reflection-positive state and OS Hilbert space exist at the finite Cartan regulator tier. Almost-sure faithful soldering holds because the rank-deficient locus is a nonzero polynomial zero set under a smooth positive density.

The caveats are load-bearing. Degenerate configurations remain in the topological support; a continuum limit could concentrate on them; and a symmetric finite-volume state has vanishing coframe expectation unless a coherent boundary state is chosen.

4 Finite-algebraic sign problem and positive completion

On the registered 16-dimensional carrier, the compact quadratic form

$$B_C = -\text{tr}(T_I T_J)$$

is positive on the ten compact directions, while the MacDowell–Mansouri form

$$B_{\text{MM}} = \text{tr}(\Gamma T_I T_J)$$

has source characteristic polynomial

$$6\lambda^4(\lambda - 4)^3(\lambda + 4)^3,$$

with three positive, three negative, and four null directions. Thus the pure MM/EH quadratic weight is not a positive coercive covariance.

The source remedy is not to declare that sign problem absent. It constructs a positive completion cone and a nonlinear simplicity measure whose finite-regulator state remains OS positive. The physical continuum action still must show that the completion has the correct low-energy spectrum and constraint algebra.

5 The relative modular score

Let ρ_+ and ρ_- be the ordered state pair associated with the golden boundary. The relative modular score is the half-log operator

$$K_{\text{rel}} = \frac{1}{2}(\log \rho_+ - \log \rho_-) = D_\varphi = \text{diag}(1, 0, -1)$$

on the golden lattice, after the source normalization cancels. Additivity is a load-bearing premise: a normalized but non-additive alternative supplies a countermodel, so the logarithmic leg is not merely chosen for convenience.

Unital complete positivity then fixes the readout scale uniquely,

$$r = \frac{\sqrt{5}}{2}.$$

The induced effects follow the exact source pattern

$$\left(\frac{1}{4}, \frac{3}{4}, \frac{1}{2}, 0, \frac{1}{2}\right),$$

sum to the identity on the two-dimensional readout, and remain positive. The zero effect on the absent support mode is important: the observation map does not regenerate a categorically excluded channel.

6 Minimal dilation, whitening, and OS evenization

The source channel has Choi rank one, so its minimal Stinespring environment is unique. Dark extra environments are representation artifacts rather than new physical parameters. The positive whitening problem

$$A = \text{diag}(a, a, a, a, b), \quad AH_h A = I,$$

has the unique positive solution

$$a = 1, \quad b = \frac{1}{2}.$$

The half is therefore an eigenvalue of the unique whitening, not a fitted coefficient.

Full Pin/OS typing removes the loophole that would send the fifth carrier generator to the identity. The raw Dirac seed is reflection odd, whereas D^2 and $|D|$ are reflection even and scalar. The physical observation layer is therefore the even positive spectral calculus, not the raw Clifford seed.

OMOS. The composite ordered-state-pair $\rightarrow$ modular score $\rightarrow$ unital-CP normalized readout $\rightarrow$ minimal dilation $\rightarrow$ Pin/OS-even spectral calculus is unique under seven premises: additivity, unitality, minimality, Pin typing, OS typing, isometry, and the whitened source. Each premise has a source countermodel demonstrating that it has teeth. The construction carries no continuous modulus.

Its mathematical status is **Certified** in the source record. Its physical attachment is **CONDITIONAL-READOUT**: the microscopic theory has not selected the seven-premise observation structure.

7 Supported observation quotient versus microscopic loading

The source also constructs a supported quotient $\Pi_{5 \leftarrow 6}^{\text{MOS}}$. It is an exact partial isometry onto the annular support, annihilates the forbidden $q = \pm 1$ modes, kills pair-difference modes, and gives a column-stochastic conditional law. A uniqueness chain removes continuous quotient freedom.

This is not the full microscopic placement/loading map. The source verifies the inequality

$$\Pi_{5 \leftarrow 6}^{\text{MOS}} \neq \Pi_{5 \leftarrow 6}^{\text{full}}.$$

The quotient describes what the admitted observation layer sees after support restrictions; it does not derive the loaded physical boundary B_{phys} or the microscopic non-equivariant placement kernel.

8 Residual walls

8.1 Observation selection and faithfulness

The most important unresolved question is whether the microscopic action uniquely selects OMOs or permits inequivalent observation functors satisfying comparable physical premises. Even after selection, one must compute

$$\ker(O_{\text{MOS}}),$$

the equivalence relation on loaded choices induced by all admitted observables. Until this kernel is known, the suite prints no scalar total of selector bits and dimensions.

8.2 Mass attachment

The finite one-particle operator has a source gap of the form

$$M_N = \Lambda \sqrt{\varphi^{2N} + \frac{1}{4}}.$$

The universal $1/4$ belongs to the Cartan-normal/observation layer. The source explicitly fences it from rest mass. A physical mass requires a positive generator or semigroup, a normalized two-point response, analytic continuation, gauge/Goldstone projection, and an isolated interacting pole with residue.

8.3 Einstein universality

Finite-regulator reflection positivity proves an existence statement, not that the continuum limit is general relativity. The decisive test is the AdS linearized spectrum of the sourced heat-kernel/simplicity action: propagating degrees of freedom, constraint algebra, ghost signs, massless spin-two pole, Newton-coupling sign, and extra scalar/vector modes.

8.4 Actuality

The source derives the record type: history, character, and boundary record are three descriptions of one object. The realized record value is sample data, not a model parameter. This does not solve or claim a deterministic selector for the particular realized outcome.

9 Claim map

Claim ID	Math status	Attachment	Current sentence / lifecycle gate
F-GEO-01	Certified	Conditional-readout	W_{sig} and S_{shell} are distinct; the Cartan carrier closes in the named Albert signature sector.
F-MM-01	Structural	Conditional-readout	A MacDowell–Mansouri action is available as a candidate for the Cartan/signature sector only.
F-CONF-01	Certified	N/A	The Euclidean conformal mode is unbounded in the source Einstein/MM weight.
F-RP-01	Certified	Conditional-readout	A normalized reflection-positive state and positive transfer operator exist at finite regulator.
F-SIGN-01	Certified	N/A	The pure MM quadratic form has source inertia $(3, 3, 4)$ and is not a positive coercive covariance.
F-OMOS-01	Certified	Conditional-readout	OMOS is unique under seven printed premises and has no continuous modulus.
F-MOSQ-01	Certified	Conditional-readout	The supported observation quotient is an exact partial isometry but is not the microscopic loading.
F-FAITH-01	Structural	N/A	Microscopic selection of OMOS and the faithfulness kernel remain open lifecycle objects.
F-MASS-01	Structural	N/A	The one-particle gap is not an interacting rest-mass pole; normalized response and LSZ attachment remain open.
F-EIN-01	Structural	N/A	Einstein universality is open pending the AdS linearized spectrum and constraint analysis.
F-ACT-01	Proved	Conditional-readout	The record type is derived; the realized record value is sample data rather than a fitted parameter.

10 Public artifact contract

A publication-active appendix must ship the exact $\mathfrak{so}(5)$ carrier matrices; projector, metric, connection, and solder data; the conformal-mode symbolic verifier; finite-regulator heat-kernel coefficients and Gram matrices; OS reflection tests and controls; the finite sign-form matrices and characteristic polynomials; the positive-completion/simplicity code;

the OMOS symbolic channel, Choi matrix, POVM, dilation, whitening, and Pin/OS checks; the supported-quotient arrays; all source hashes; and method-disjoint reruns corresponding to the s917–s929 arc. None of those scientific arrays is reconstructed from prose in this editorial release.

11 Conclusion

The Cartan/observation arc answers two existence questions and exposes the remaining physical wall. A reflection-positive state exists at finite regulator, and a mathematically sharp observation functor exists under seven premises. Neither existence result supplies microscopic selection, a faithful physical observable algebra, Einstein universality, or an interacting mass pole. The critical path is consequently upstream-to-downstream: full loading and boundary → OMOS selection or rejection → faithfulness kernel → normalized response → interacting pole.

References

- [1] S. W. MacDowell and F. Mansouri, “Unified Geometric Theory of Gravity and Supergravity,” *Phys. Rev. Lett.* 38 (1977) 739–742.
- [2] K. Osterwalder and R. Schrader, “Axioms for Euclidean Green’s Functions,” *Commun. Math. Phys.* 31 (1973) 83–112.
- [3] K. Osterwalder and R. Schrader, “Axioms for Euclidean Green’s Functions II,” *Commun. Math. Phys.* 42 (1975) 281–305.
- [4] W. F. Stinespring, “Positive Functions on C^* -Algebras,” *Proc. Amer. Math. Soc.* 6 (1955) 211–216.
- [5] SGTOE Rev32.5_S300 Appendix T and Appendix Y, supplied source artifact.

v1.3 Addendum: clock boundary, six-face carrier arc, declared response premise, and basepoint placeholder

Layer statement

The clock, golden bridge, Roman/clock obstruction, Cartan carrier, OMOS quotient, and carrier-arc results are finite statements on registered carriers. They do not establish external time, occupation, a continuum pole, a selected microscopic observation map, or CKM dynamics. Rev32.5 adds one declared response premise and one declared basepoint placeholder; neither is a derivation.

1 Twelve-copy Clifford clock identity and golden bridge

On the active carrier the frozen braid words decompose into exactly twelve copies of $\text{Cl}(2,1)$, with

$$\kappa_{\text{sel}} = \kappa_{\text{clk}} = \frac{1}{\sqrt{6}}.$$

The hyperbolic braid word W_h has an exact symplectic unimodular square root

$$H_\phi^2 = W_h, \quad \text{spec}(H_\phi) = \phi^{-1(12)} \oplus 1^{(32)} \oplus \phi^{(12)}.$$

These are carrier-normalization and finite-spectrum statements. They do not select measured time, occupation rungs, or an energy scale.

2 Roman surface and occupation-clock semantic split

For the diagonal Jordan adjoint $T(x,y,z) = (yz,xz,xy)$, the map descends through $S^2 \rightarrow \mathbb{RP}^2$, is S_3 -equivariant, sends $(\phi, 1, \phi^{-1})$ to $(\phi^{-1}, 1, \phi)$, and has three double lines, six pinch points, and twelve pinch preimages. The clock side has sixty rungs, thirty-three simples, four loaded occupied rungs, and thirty even rungs.

A-ROMAN-Z2-01 – Certified finite-invariant obstruction

No count-preserving identification matches the Roman finite invariant set $\{3,6,12\}$ to the clock inventory $\{60,33,4,30\}$. This is a finite-invariant obstruction, not a global no-go against every functor.

A-ROMAN-Z2-02 – Structural interface candidate

The Roman antipodal deck action and clock Möbius orientation parity are descriptively compatible $\mathbb{Z}_2$ structures, but the clock grading is not a fixed-point-free deck action and no equivariant map, quotient construction, or Möbius spinor bundle has been produced. The two $\mathbb{Z}_2$ actions are not identified.

Historical source-output scope

The historical source prints 17/17 passing assertions. The shipped semantic audit classifies exactly fifteen as computed predicates and two as literal premise/fence assertions. The source output is preserved; the certification claim is narrowed to the computed geometry, clock invariants, and finite strong-form obstruction.

3 Rev32.5 six-face carrier ledger

Face	Current status	Binding Rev32.5 statement
1	Proved/Certified local carrier	The Albert-to-shell carrier and the positive paired-shell polarization are explicit at the registered finite tier. No physical output is inferred solely from the common carrier.
2	Definitional at shipped tier	The statement is over the locked thirty-row candidate universe only. It is not an impossibility theorem over every future microscopic completion.
3	Structural, torsor open	A locally positive paired-shell polarization exists up to the shell-exchange torsor. The relative orientation is not selected.
4	Structural covariant class	The covariant odd response space is inhabited; its orbit/class is identified, while the torsor sign remains unspent.
5	Certified quotient, physical leg open	The MOS record quotient has rank three and relative rank two. It does not restore microscopic support or construct the missing physical observation map.
6	Output gate	The spectral pair and physical output remain gated on a theory-selected basepoint and a microscopic support-restoring observation map.

4 MOS channel, solder, and normalization census

The MOS channel $W_{\lambda,\tau}$ is completely positive in the declared class only for

$$|\lambda| \leq \sqrt{2},$$

and the solder factor obeys $|\mu| \leq 1$. Therefore the registered product satisfies

$$|\lambda\mu| \leq \sqrt{2}.$$

The forty-row normalization census has zero forcing rows. The alpha-dependent row closes only in the permutation class, and the exact rank-two support certificate is tier-local: it certifies the finite carrier/support statement and does not promote a physical amplitude.

F-RESP-PREM-01 – PREMISE-GRADE-4-RESPONSE

The working branch declares

$$|\lambda\mu| = 1.$$

This is a PI-declared amplitude premise, not a consequence of complete positivity, the solder, or the normalization census. The extremal $\sqrt{2}$ alternative remains mathematically allowed and was not adopted; the no-response alternative was declined. The shell-exchange orientation $\tau = \pm 1$ remains unselected. This premise constructs neither Π_{full} nor CKM.

F-BASEPOINT-01 – DECLARED-BASEPOINT-PLACEHOLDER

The symbol used for the basepoint subgroup is a declared placeholder marking the type of datum still required. No subgroup is selected by this placeholder. Without a theory-selected stabilizer/basepoint, the transported point and downstream observation map remain declared rather than intrinsically derived.

5 Current frontier

The carrier arc has closed the finite carrier identification, local paired-shell positivity, a covariant odd response class, the record-quotient UCP channel, and the reversal-covariant score solder. It has also proved two walls: no intrinsic basepoint exists in the complete shipped candidate universe, and no registered normalization law forces $|\lambda\mu|$. The remaining task is the joint construction of (i) a theory-selected basepoint subgroup and (ii) a microscopic support-restoring observation map. Only then may the spectral-pair/output gate be opened.

6 Tier summary

Object	Status / attachment	Fence
Carrier and local polariza- tion	Certified / Conditional- readout	Finite registered carrier; no external physical output.
Odd response class	Structural / Conditional- readout	Class exists; torsor/orientation and coefficient are not se- lected.
MOS quotient and rank- two support	Certified / Conditional- readout	Record quotient only; no microscopic support restoration.
$ \lambda\mu = 1$	Input / Conditional- readout	Declared premise; alternatives remain visible.
Basepoint subgroup	Input / N/A	Placeholder only; no subgroup selected.
Physical observation map	Structural / N/A	Open; neither Π_{full} nor CKM is constructed.

Suite-wide Claim Manifest

Canonical v1.3 mathematical status, physical attachment, evidence state, lifecycle, supersession, and Rev32.5 source locators

Tom O'Sieg and the SuperGrokTOE Coalition

Track-2 editorial consolidation by GPT-5.6 Pro

4 September 2026

Release firewall. This v1.3 release re-bases the polished Track-2 series onto the sealed Rev32.5_S300 laboratory-notebook basis. Definition A remains binding; alpha and the compact colour real form remain fenced; the scientific engine and kernel are untouched; no registered Track-1 target, scientific tier, or public observable is moved.

Rev32.5 synchronization. The update carries the current comparator ledger, ordering/interface language, $AX6_{\text{pol}}/\text{Det}^2$ split, neutrino two-reading audit, nuclear retypes, Appendix-T declared response premise and basepoint placeholder, six-face carrier arc, source-ledger IDs, resolver contract, and the historical $15 + 2$ Roman/clock semantic split. The θ_{23} provenance dispute is held exactly as sealed: `CONTESTED`, 3/8 retained, A1566 lane-adjudicated and PI ruling pending.

Coverage and controlled schema

This manifest is generated from one 112-row structured source. The 100 v1.2.1 rows retain stable IDs and order; twelve Rev32.5 synchronization rows are appended. No inherited row is renumbered.

Axis	Controlled values
Mathematical status	Proved, Certified, Structural, Input, Historical
Physical attachment	Derived-attachment, Conditional-readout, Loaded-correspondence, Fitted, External-input; N/A is a non-physical sentinel
Evidence state	analytic-in-text, source-certificate-shipped, source-certificate-not-shipped, external-source, registry-only, open/no-artifact
Lifecycle	current, open

v1.3 controlling changes

Current comparator rows cite stable S302 source-ledger IDs; the A1566 theta23 disposition is held pending PI ruling; ordering carries the ladder/interface dependency; AX6_{pol}, R1/R2, nuclear retypes, response premise, basepoint placeholder, and six-face carrier rows are explicit. The historical Roman/clock source output is separated from its fifteen-computed-plus-two-literal semantic scope. CSV and JSON are authoritative. The core table and audit trail use an explicit 9-point type size, closing A1541 R2.

Part I – Core claim registry

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
A-5D-CYL	The finite carrier fails the cylinder-condition count with signature (1,27,27,1).	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper A, Bounded fifth-direction carrier
A-5D-NEC	No purely four-dimensional countermodel reproduces all three finite-carrier signatures in the declared comparison class.	Structural	Conditional-readout	source-certificate-not-shipped / current	Paper A, Bounded fifth-direction carrier
A-5D-NS	The mirror/Lucas flicker has the registered antiperiodic spin-structure signature.	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper A, Bounded fifth-direction carrier
A-5D-SCALE	The declared winding census contains one positive central scale class.	Proved	Conditional-readout	source-certificate-not-shipped / current	Paper A, Bounded fifth-direction carrier
A-5D-TICK	The finite Z_4 tick is additive and mirror-reversing, a momentum-like grading modulo four.	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper A, Bounded fifth-direction carrier
A-CUB-01	An integral 27 by 27 cubic map exists, while Peirce and compact chirality planes are not related by one cubic-preserving automorphism.	Certified	N/A	source-certificate-not-shipped / current	Paper A, Full integral cubic interface
A-FRM-01	Cayley plus triality, not Cayley alone, carries the rigid golden Cartan into the local self-dual four-form chart.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper A, Rigid-to-local $SU(8)$ frame
A-FTS-01	The FTS is the symplectic bulk vectorization of the cubic Jordan Lagrangian boundary.	Proved	N/A	source-certificate-not-shipped / current	Paper A, Rev29 FTS theorem
A-GEO-01	The canonical 54-plane fails the Lie-triple criterion; the canonical 16-plane passes and has the registered split-D4 generated-algebra certificate.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper A, Scalar geometry and certificate contract
A-INT-01	The integral 56 has primitive Lagrangian halves and a unique grading-homogeneous magnetic section.	Certified	N/A	source-certificate-not-shipped / current	Paper A, Integral symplectic interface
A-SUB-01	The frozen 56/133 matrices realize the declared split symplectic E7(7) substrate.	Certified	N/A	source-certificate-not-shipped / current	Paper A, Explicit 56/133 representation contract
A-SUB-02	P54 and P16 are complementary projectors of ranks 54 and 16.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper A, Scalar geometry
B-BR-01	All 21 enumerated faithful compact classes fail the simultaneous colour-octet and weak-triplet adjoint test.	Certified	N/A	source-certificate-not-shipped / current	Paper B, Branching-wall computation
B-CH-01	The loaded unitary matter-colour class has no image-compatible octet in the tested invariant embedding-tensor space.	Certified	N/A	source-certificate-not-shipped / current	Paper B, Matter-colour charge wall
B-COMP-01	Domain-wide wording is open until compact-embedding, module-intertwiner, and symplectic-frame completeness close.	Structural	N/A	open/no-artifact / open	Paper B, Completeness gates
B-FUN-01	The declared B plus $SU(5)$ frame supports one loaded generation and exact anomaly cancellation.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper B, Loaded one-generation functor
B-HIG-01	The bare real 56 has no E7(7)-invariant rank-one Higgs projector.	Proved	N/A	analytic-in-text / current	Paper B, Frame-free Higgs-line no-go
B-SHD-01	A shadow $su(3)+u(1)+u(1)$ remnant occurs in the scanned classical family and fails the Standard-Model charge-pattern test.	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper B, Shadow remnant

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
B-UNI-01	Under the printed matter, charge, action, scalar, and finite-census premises, the compact completion is unique up to B-L and global quotient.	Structural	Loaded-correspondence	source-certificate-not-shipped / current	Paper B, Uniqueness of completion
C-73-01	The 7/3 trace normalization is forced, while physical residue and LSZ attachment remain open.	Proved	Conditional-readout	source-certificate-not-shipped / current	Paper C, 7/3 trace theorem
C-COMP-01	The explicitly registered enhanced-symmetry and compensator candidates fail to produce the target hierarchy.	Certified	N/A	source-certificate-not-shipped / current	Paper C, Candidate-compensator diagnostic
C-DEM-01	In the declared multiplicity-one equivariant category, the invariant coefficient channel is the democratic ray (1,1,1,1).	Proved	Loaded-correspondence	analytic-in-text / current	Paper C, Democratic coefficient ray
C-LEAK-01	Exactly half of the raw trilinear squared norm lies in forbidden mirror sectors and is removed by the loaded hypercharge projector.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper C, Hypercharge projection
C-NOGO-01	The banked parent does not determine the four physical coefficient ratios inside the exact and finite domains printed in Paper C.	Structural	N/A	registry-only / current	Paper C, Scoped negative
C-RANK-01	The banked parent kinetic metric has relative rank zero on the four Yukawa channels.	Proved	N/A	analytic-in-text / current	Paper C, Parent kinetic rank
C-RES-01	The residue-incidence map has rank four on eight residue variables, so free residues can reproduce any positive quartet.	Proved	N/A	analytic-in-text / current	Paper C, Residue map
C-RUN-01	The displayed one-loop trajectory produces only order-one spread from the democratic unit ray.	Certified	N/A	source-certificate-not-shipped / current	Paper C, Perturbative-running diagnostic
C-TRI-01	A nonzero G2(2)-invariant split-octonion trilinear exists on the loaded cubic channel.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper C, Invariant trilinear
C-YUK-01	The loaded hypercharge projection realizes the four one-generation Standard-Model Yukawa tensors.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper C, Invariant trilinear
D-73-01	The 7/3 trace/index is exact; the pole/LSZ and low-energy mass attachments are open.	Proved	Conditional-readout	source-certificate-not-shipped / current	Paper D v1.3, 7/3 registry
D-CHI-01	Exact single-chi additive mass-ratio completion is refuted.	Certified	N/A	source-certificate-not-shipped / current	Paper D v1.3, Occupation and mass response
D-LEP-01	The muon-to-tau formula $(\phi/\sqrt{5})^{8/3} \sqrt{2}/10$ is Structural / Loaded-correspondence / Reproduced; the +0.37 percent residual is the multiplicative coefficient gap.	Structural	Loaded-correspondence	source-certificate-not-shipped / current	Paper D v1.3, Charged-lepton registry
D-LEP-02	The electron row is Koide-closed under external K=2/3.	Structural	External-input	external-source / current	Paper D v1.3, Charged-lepton registry
D-MIX-01	The solar-angle relation $\tan(\theta_{12}) = \sqrt{3}/\phi^2$ is proved internally; its physical readout assumes normal ordering and is additionally conditional on the Structural Rd ladder and the undeclared ladder-to-propagation-eigenstate interface.	Proved	Conditional-readout	source-certificate-not-shipped / current	Paper D v1.3, Mixing registry
D-MIX-02	$\sin^2(\theta_{23}) = 7/16$.	Proved	Conditional-readout	source-certificate-not-shipped / current	Paper D v1.3, Mixing registry; Suite Guide v1.3 hold

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
D-MIX-03	$\sin^2(\theta_{13}) = \sin^4(\pi/8)$.	Structural	Conditional-readout	registry-only / current	Paper D v1.3, Mixing registry
D-MIX-04	$\delta_{CP} = -2\pi/\sqrt{5}$.	Proved	Conditional-readout	source-certificate-not-shipped / current	Paper D v1.3, Mixing registry
D-MIX-05	The Peirce first-row weight $1/\sqrt{6}$ is exact. The exact-framework readout is $ V_{us} = 0.225247$ (+1.11 sigma, SL-11); the measured-angle diagnostic is 0.22687 (+3.01 sigma, SL-11). Route preference remains data-selected.	Proved	Loaded-correspondence	registry-only / current	Paper D v1.3, Mixing registry; Suite Guide v1.3 comparator ledger
D-MIX-06	The exact expression $ V_{cb} = 1/(9\sqrt{7})$ gives 0.041996, +1.00 sigma against SL-13. The integer 9 lacks a forcing theorem; the dependent A1566 tier ruling is PI-pending.	Structural	Loaded-correspondence	registry-only / current	Paper D v1.3, Mixing registry; Suite Guide v1.3 hold
D-MIX-07	The hierarchy relation gives $ V_{ub} = 0.003862$, -0.17 sigma against SL-12, and inherits the Loaded first-row route.	Structural	Loaded-correspondence	registry-only / current	Paper D v1.3, Mixing registry
D-MIX-08	The retained CKM phase numeral is 68.1297 degrees: +1.41 sigma against the global-fit phase SL-19 and +0.64 sigma against the direct angle SL-20. It remains Coincidence-class because the G7 selection motivation is absent.	Structural	Loaded-correspondence	registry-only / current	Paper D v1.3, Mixing registry
D-MIX-H	Mixing is a controlled correspondence defect, not an engine-derived CKM prediction.	Structural	N/A	registry-only / current	Paper D v1.3, Mixing registry
D-OBS-01	The carrier arc constructs a finite record quotient and score solder, but the microscopic support-restoring observation map, physical Π_{full} , and mass/generation readout remain open; the printed response amplitude is declared rather than derived.	Structural	N/A	open/no-artifact / open	Paper D v1.3, Observation registry; Technical Appendix F v1.3
D-OCC-01	The loaded occupation support is $\{0,3,11,17\}$, with live continuation $\{31,39\}$.	Structural	Loaded-correspondence	source-certificate-not-shipped / current	Paper D v1.3, Occupation and mass response
D-SCL-COUNT	One positive central scale class is counted within the declared winding architecture.	Proved	N/A	source-certificate-not-shipped / current	Paper D v1.3, One-scale registry
D-SCL-KILL	A second independent underivable dimensionful ratio falsifies the one-input chain.	Structural	N/A	registry-only / current	Paper D v1.3, One-scale registry
D-SCL-VALUE	The numerical scale registration is measured.	Input	External-input	external-source / current	Paper D v1.3, One-scale registry
E-CHG-01	Charge signs and counts remain the strong finite ledger; charge magnitudes remain open and require configuration-dependent coherence/screening data.	Structural	N/A	open/no-artifact / open	Paper E v1.3 nuclear retype addendum
E-FUN-01	The exhibited F_{ϕ} functor and frozen generator menu define the finite cluster kernel.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper E, Finite functor
E-GAP-01	The $A=5$ and $A=8$ sign calls follow from the frozen closed-cell typing.	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper E, Gap consequences
E-HOY-01	The Hoyle-state row passes its frozen 10 percent bar.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper E, Corrected ledger
E-KER-01	The $A \leq 4$ kernel is triangularly saturated; later continuations carry the prospective weight.	Structural	Loaded-correspondence	registry-only / current	Paper E, $A \leq 4$ kernel

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
E-LAD-01	$T_n=(n-2)+tr_{\phi}(R_n)$ is the source finite trace ladder, with sealed T5 and T9 matches.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper E, Composition ladder
E-LED-01	The source ledger contains seventeen sharp binding rows, worst untyped 0.37 percent, plus one typed obstruction.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Paper E, Corrected nuclear ledger
E-PROS-01	Publication evidence requires one untouched external prediction with a frozen formula, bar, and matched statistical baseline.	Structural	N/A	registry-only / open	Paper E, Prospective external-prediction gate
E-SCL-COUNT	One positive central scale class is counted within the declared winding architecture.	Proved	N/A	source-certificate-not-shipped / current	Paper E, One-scale registry
E-SCL-KILL	A second independent underivable dimensionful ratio falsifies the one-input chain.	Structural	N/A	registry-only / current	Paper E, One-scale registry
E-SCL-VALUE	The numerical scale registration is measured.	Input	External-input	external-source / current	Paper E, One-scale registry
E-SI-01	The 28Si first-circulation row is one typed obstruction. The direct connected-Markov-second-moment and perturbative annular repair classes are closed negative in the class tested; the surviving reopen class is packing/coordination of six to seven cells.	Certified	N/A	source-certificate-not-shipped / current	Paper E v1.3 nuclear retype addendum
E-YM-01	No continuum or Yang-Mills functor is supplied.	Structural	N/A	open/no-artifact / open	Paper E, Open flanks
F-ACT-01	The record type is derived, while the realized record value is sample data rather than a fitted model parameter.	Proved	Conditional-readout	source-certificate-not-shipped / current	Technical Appendix F, Actuality
F-CONF-01	The Euclidean conformal mode is unbounded in the source Einstein/MacDowell-Mansouri weight.	Certified	N/A	source-certificate-not-shipped / current	Technical Appendix F, Conformal obstruction
F-EIN-01	Einstein universality is open pending the AdS linearized spectrum and constraint analysis.	Structural	N/A	open/no-artifact / open	Technical Appendix F, Einstein universality
F-FAITH-01	The output/faithfulness wall is now typed as the joint absence of a theory-selected basepoint subgroup and a microscopic support-restoring observation map; the declared response premise does not close either.	Structural	N/A	open/no-artifact / open	Technical Appendix F v1.3, Current frontier
F-GEO-01	The Rev32.5 carrier arc supplies the finite Albert-to-shell carrier, local paired-shell positive polarization, and a six-face ledger whose face-2 statement is restricted to the locked thirty-row candidate universe.	Certified	Conditional-readout	source-certificate-not-shipped / current	Technical Appendix F v1.3, Six-face carrier ledger
F-MASS-01	No physical mass attachment follows from the finite carrier arc. The working $ \lambda\mu =1$ response is declared, τ is unselected, and neither Π_{full} nor CKM is constructed.	Structural	N/A	open/no-artifact / open	Technical Appendix F v1.3; Paper D v1.3 observation registry
F-MM-01	A MacDowell-Mansouri action is available as a candidate for the Cartan/signature sector only.	Structural	Conditional-readout	registry-only / current	Technical Appendix F, Candidate action
F-MOSQ-01	The MOS record quotient has rank three and relative rank two; it is a finite record quotient and does not restore microscopic support or construct the physical observation map.	Certified	Conditional-readout	source-certificate-not-shipped / current	Technical Appendix F v1.3, MOS channel and normalization census

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
F-OMOS-01	OMOS remains the record-quotient UCP observation functor only. The mass/generation observation map and microscopic support restoration are distinct open objects.	Certified	Conditional-readout	source-certificate-not-shipped / current	Technical Appendix F v1.3, carrier-arc frontier
F-RP-01	A normalized reflection-positive state and positive transfer operator exist at finite regulator.	Certified	Conditional-readout	source-certificate-not-shipped / current	Technical Appendix F, Finite-regulator state
F-SIGN-01	The pure MacDowell-Mansouri quadratic form has source inertia (3,3,4) and is not a positive coercive covariance.	Certified	N/A	source-certificate-not-shipped / current	Technical Appendix F, Sign problem
G-EVID-01	Externally active Proved and Certified claims remain publication-inactive unless the proof is complete and inspectable in the paper or the content-addressed scientific artifact and an independent verifier are public.	Structural	N/A	registry-only / current	Suite Guide v1.3, Source apparatus and validation; repeated evidence boxes
G-FRONT-01	The current observation frontier is the joint construction of a theory-selected basepoint subgroup and a microscopic support-restoring observation map; the declared response amplitude and finite quotient do not substitute for either.	Structural	N/A	open/no-artifact / open	Suite Guide v1.3, Technical Appendix F synchronization
G-MIX-01	The live v1.3 mixing summary uses the exact Rev32.5 comparator values and source-ledger IDs, keeps the CKM first row Loaded and deltaCKM Coincidence-class, and mirrors the sealed theta23 CONTESTED hold with the 3/8 tally retained pending PI ruling.	Structural	N/A	registry-only / current	Suite Guide v1.3, comparator ledger and A1566 hold; Paper D v1.3
G-NUC-01	Paper E carries seventeen sharp pre-frozen binding-energy passes plus one typed 28Si obstruction; the annular negative is scoped, packing/coordination remains open, isospin is Loaded, and the neutron-proton split is Unpriced.	Certified	Loaded-correspondence	source-certificate-not-shipped / current	Suite Guide v1.3; Paper E v1.3
G-SCL-01	A second independent underivable dimensionful ratio falsifies the one-input chain.	Structural	N/A	registry-only / current	Suite Guide v1.3; Papers D/E
G-TAX-01	Every load-bearing claim uses exactly one of five mathematical statuses, one controlled physical attachment (or N/A), and one of six evidence states; the 112-row v1.3 manifest is validated with mutation-based negative controls.	Structural	N/A	registry-only / current	Suite Guide v1.3, Roman/clock semantic scope; Claim Manifest v1.3
A-VAC-01	Algebraic conditional selector: under unit determinant, the named inversion/golden-field premise, and the Gram condition, the positive diagonal spectrum is $\{\phi, 1, \phi^{-1}\}$ up to permutation; the ordered physical Peirce frame remains loaded.	Structural	Loaded-correspondence	analytic-in-text / current	Paper A v1.3, Route-B addendum
A-CLK-01	On the active carrier the frozen braid words furnish exactly twelve copies of $Cl(2,1)$, and the selector-law coefficient equals the clock commutator coefficient $1/\sqrt{6}$.	Proved	N/A	source-certificate-not-shipped / current	Technical Appendix F v1.3 addendum, Clock identity
A-GBR-01	The braid hyperbolic word W_h has an exact symplectic unimodular square root H_ϕ with $H_\phi^2=W_h$ and spectrum $\phi^{-1}(12)+1(32)+\phi(12)$; $\sqrt{5}$ enters as the discriminant, not a numerical insertion.	Proved	N/A	source-certificate-not-shipped / current	Technical Appendix F v1.3 addendum, Golden bridge

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
C-PAR-01	Within the frozen split-real 56-frame and declared finite/internal loaded-profile class, the selector parent action is complete-conditional with a global minimum and positive Hessian; its incremental price is 10+1 continuous and zero independent discrete data.	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper C v1.3 addendum, Parent-action closure
C-SPLIT-01	The loaded-plane transport-defect algebra forces the exact 26+10 interior eigenspace split at zero incremental price.	Proved	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum, Forced interior split
C-RCHAR-01	A rank-normalized carrier-character action has second variation exactly Q_T , with every displayed coefficient traced to a carrier rank.	Certified	Conditional-readout	source-certificate-not-shipped / current	Paper C v1.3 addendum, Rank-character theorem
C-PHIDIAG-01	The nonlinear action shape is not grammar-selected: a four-dimensional moduli space survives. Φ_{diag} is adopted only as a declared, minimal, non-intrinsic structural principle, and its price is explicit.	Structural	Conditional-readout	registry-only / current	Paper C v1.3 addendum, Action-shape obstruction
C-TENS-01	Three-ten carrier fence: the physical/vector ten and selector ten are isomorphic K_{dyn} modules with Casimir 1/6; the boundary ten is the K_{dyn} adjoint with Casimir 1/4 and is inequivalent. The least direct intertwiner obstruction is $1/\sqrt{6}$.	Proved	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum; Technical Appendix F v1.3 addendum; Paper D v1.3
C-RHALF-01	In the declared compact two-scale, plane-preserving, coset-compatible, Standard-Model-invariant Gram class, the family collapses to $l=c$, so the previously priced point $r=l/c=1/2$ is excluded.	Certified	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum, Compact two-scale exclusion
A-VAC-02	Within the Route-B class of positive units of $Z[\phi]$ with $abc=1$ and non-degenerate spectrum, minimizing the Gram invariant uniquely selects $\{\phi, 1, \phi^{-1}\}$ up to permutation and outputs $\det Gram=7$.	Proved	N/A	source-certificate-shipped / current	Paper A v1.3 addendum; Guide; Paper D
A-ROMAN-Z2-01	At the level of the printed finite invariants, the Roman singular structure $\{3 \text{ double lines, } 6 \text{ pinch points, } 12 \text{ pinch preimages}\}$ cannot be identified count-preservingly with the occupation-clock inventory $\{60 \text{ rungs, } 33 \text{ simples, } 4 \text{ occupied, } 30 \text{ even}\}$.	Certified	N/A	source-certificate-shipped / current	Technical Appendix F v1.3 addendum; Guide v1.3; Paper D v1.3
D-SCL-ANCHORS	The operative formula chains currently consume three empirical dimensional anchors (m_{τ} , v_{EW} , Λ_{G2}), which is a different inventory from the theorem about one abstract positive central scale class.	Input	External-input	registry-only / current	Guide v1.3; Paper D v1.3
A-COLD-SCOPE-01	Schur symmetry supplies block structure and scalar action but not zero eigenvalue; generic three-entry Yukawa loops are not declared fully Artin-protected without a generator census.	Historical	N/A	analytic-in-text / current	Guide v1.3; revision note
C-BCFAM-01	The current boundary-condition-family ruling is CLASS-rho primary, CLASS-W retained only under $C4=0$, and CLASS-H deferred.	Input	N/A	registry-only / current	Paper C v1.3 addendum; Guide
C-H2-TRIV-01	In the minimal H2 class the target action is forced trivial; target-triviality is therefore free and is not an additional input clause.	Proved	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum; Guide; Paper D

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
C-H2-RANK-01	The minimal H2 class is predeclared at rank two. Its unresolved price is six continuous entries of C0 in Mat(3,2) plus one-map-for-all-eta naturality.	Input	N/A	registry-only / current	Paper C v1.3 addendum; Guide; Paper D
C-C0-INDEP-01	At the frozen H2 tier the six C0 coefficients are countermodel-grade independent: two disjoint symbolic rank-two candidates pass the same 13 gates and 30 controls, and no banked selection polynomial separates them.	Certified	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum; Guide; Paper D
C-OS-FINITE-01	A finite Gaussian Osterwalder-Schrader subgate and a toy resolvent pass at conditional/finite tier.	Certified	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum; Guide; Paper D
C-QUAD-01	The lowest K_{dyn} -equivariant nonlinear bridge spaces have dimensions $\dim \text{Hom}(\text{Sym}^2 P, B)=1$ and $\dim \text{Hom}(\text{Sym}^2 B, P)=2$.	Certified	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum; Guide; Paper D
C-FSEL-C-01	F-SEL(c) closes negative only in the current banked class and condition inventory: the universal cone claim is withdrawn, and Casimir-naturality excludes Φ_{diag} rather than selecting it.	Certified	N/A	source-certificate-not-shipped / current	Paper C v1.3 addendum; Guide; Paper D
C-SEL27-01	After the scoped F-SEL(c) closure, SEL-27 is a theorem-backed PI declaration question rather than an unresolved mathematical census; no coefficient choice has been made.	Input	N/A	registry-only / current	Paper C v1.3 addendum; Guide
F-DYN-SEED-01	The no-energy-order fence is compatible with the motivated symplectic clock/dynamics seed: H_{clk} is extra Cartan structure, not a tensor-layer order, and H_{phi} independently corroborates one face of its golden flow.	Structural	N/A	registry-only / current	Technical Appendix F v1.3 addendum; Guide
A-ROMAN-Z2-02	The Roman antipodal deck action and the clock Mobius orientation parity motivate a possible orientation-parity interface, but no equivariant map, free clock-side deck action, quotient construction, or Mobius spinor bundle is supplied.	Structural	N/A	registry-only / current	Technical Appendix F v1.3 addendum; Guide v1.3; Paper D v1.3
D-AX6-01	AX6_{pol} is the independent polarization postulate $\text{Lambda}^*=3P/Q(Y)=6\phi-1$; the degree-six $\cos(6\psi)=1/2$ construction is the distinct retired Det^2 object, and A667 applies only to it.	Input	Conditional-readout	registry-only / current	Paper D v1.3, AX6_{pol} registry; Suite Guide v1.3
D-NU-R1-01	The literal $d=1$ Jordan-adjoint mass reading predicts the scale-free neutrino splitting ratio 0.27639 against 0.03002 and is genuinely falsified; the carrier remains valid only as a mixing carrier.	Certified	N/A	source-certificate-shipped / current	Paper D v1.3, Neutrino mass-ratio readings
D-NU-R2-01	The selected $d(\nu)=2$ rung gives $R2=0.17082$ and $R2^2=0.02918$, a 1.44-1.79 sigma below-floor edge target under normal ordering, not a mass relation or hit; the selection is post-hoc and receives no blind credit.	Structural	Conditional-readout	source-certificate-shipped / current	Paper D v1.3, Neutrino mass-ratio readings
E-ANN2-01	The direct connected-Markov-second-moment repair and perturbative annular attachment are closed negative in the tested class; the surviving reopen class is packing/coordination of six to seven cells.	Certified	N/A	source-certificate-shipped / current	Paper E v1.3 nuclear retype addendum
E-ISO-01	The fixed-Z isospin coefficient $\chi=\phi^6 T3$ is selected rather than derived; the only registered $u\leftrightarrow d$ operation is an O_s conjugation Z2 parity, not a derived $SU(2)$ action.	Input	Loaded-correspondence	source-certificate-shipped / current	Paper E v1.3 nuclear retype addendum

ID	Wording	Math	Attachment	Evidence / lifecycle	Release location
E-NP-01	The neutron-proton mass difference 1.2933 MeV is Unpriced: the framework carries a Coulomb/QED contribution but no QCD flip energy, and the registered e7 conjugation carries no energy.	Input	N/A	open/no-artifact / open	Paper E v1.3 nuclear retype addendum; Paper D v1.3
F-RESP-PREM-01	The working response magnitude $ \lambda \mu =1$ is a PI-declared premise. The $\sqrt{2}$ alternative remains mathematically allowed, zero response was declined, and $\tau=\pm 1$ remains unselected; neither Π_{full} nor CKM is constructed.	Input	Conditional-readout	registry-only / current	Technical Appendix F v1.3; Paper D v1.3 observation registry
F-BASE POINT-01	The basepoint subgroup symbol is a declared placeholder recording the type of datum required; no subgroup is selected by the placeholder.	Input	N/A	registry-only / current	Technical Appendix F v1.3; Paper D v1.3 observation registry
F-CARR-01	The Rev32.5 six-face ledger records the finite carrier arc; face 2 is definitional only over the locked thirty-row shipped universe, and face 6 remains the physical output gate.	Certified	Conditional-readout	source-certificate-shipped / current	Technical Appendix F v1.3, Six-face carrier ledger
F-ODD-01	A covariant odd response class is inhabited on the finite carrier, but the shell-exchange torsor/orientation remains unselected and no physical coefficient is fixed.	Structural	Conditional-readout	source-certificate-shipped / current	Technical Appendix F v1.3, Six-face carrier ledger
F-NORM-01	The MOS and solder bounds give $ \lambda \leq \sqrt{2}$, $ \mu \leq 1$, hence $ \lambda \mu \leq \sqrt{2}$; the forty-row normalization census has zero forcing rows, and the exact rank-two support certificate is tier-local.	Certified	N/A	source-certificate-shipped / current	Technical Appendix F v1.3, MOS channel and normalization census
G-SRC-01	The v1.3 source apparatus cites Rev32.5 comparators by stable S302 sidecar ID, ships the exact thirty-three source files, and validates locators and proof artifacts; a locator never substitutes for the artifact.	Structural	N/A	source-certificate-shipped / current	Suite Guide v1.3, Source apparatus and validation; PART2 source/reproduction package

Part II – Claim-by-claim audit trail

A-5D-CYL – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: does not prove a physical fifth spacetime dimension

Assessment: Rev25 Appendix P

Verifier: s740, source-reported

Precommit: S226

Artifact: not shipped

Source: Rev32.5 Appendix P

Dependencies: –

Supersedes: v1.2.1 A-5D-CYL before the Rev32.5_S300 source/release re-point

A-5D-NEC – Structural / Conditional-readout / source-certificate-not-shipped / current

Caution: domain-relative hostile-lane theorem

Assessment: A1356

Verifier: argument/countermodel record not shipped

Precommit: S226

Artifact: not shipped

Source: Rev32.5 Appendix P

Dependencies: –

Supersedes: v1.2.1 A-5D-NEC before the Rev32.5_S300 source/release re-point

A-5D-NS – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: finite carrier only

Assessment: Rev25 Appendix P

Verifier: s734, source-reported

Precommit: S226

Artifact: not shipped

Source: Rev32.5 Appendix P

Dependencies: –

Supersedes: v1.2.1 A-5D-NS before the Rev32.5_S300 source/release re-point

A-5D-SCALE – Proved / Conditional-readout / source-certificate-not-shipped / current

Caution: numerical value is external

Assessment: A1355

Verifier: s741, source-reported

Precommit: S226

Artifact: not shipped

Source: Rev32.5 Appendix P/X

Dependencies: –

Supersedes: v1.2.1 A-5D-SCALE before the Rev32.5_S300 source/release re-point

A-5D-TICK – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: not a physical momentum operator

Assessment: Rev25 Appendix P

Verifier: s740, source-reported

Precommit: S226

Artifact: not shipped

Source: Rev32.5 Appendix P

Dependencies: –

Supersedes: v1.2.1 A-5D-TICK before the Rev32.5_S300 source/release re-point

A-CUB-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: correct architecture is a span of interfaces

Assessment: S308 and alignment invariant

Verifier: coefficientwise cubic certificate, not shipped

Precommit: N/A

Artifact: integer cubic map and rank-invariant certificate

Source: Earlier Track-2 Paper A cubic interface

Dependencies: –

Supersedes: –

A-FRM-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current

Caution: frame conversion is not a mass theorem

Assessment: A1123-era frame map

Verifier: Stage-2A/2B frame checks, not shipped

Precommit: N/A

Artifact: triality map, 56-bein and four-form certificate

Source: Rev32.5 action-frame record

Dependencies: –

Supersedes: v1.2.1 A-FRM-01 before the Rev32.5_S300 source/release re-point

A-FTS-01 – Proved / N/A / source-certificate-not-shipped / current

Caution: kinematic only; clause 27 Hamiltonian attachment open

Assessment: A1474 / P0-1

Verifier: s957 blind reproduction, source-reported

Precommit: D1171 freeze

Artifact: FTS Lagrangian-subspace proof object not shipped

Source: REV29_WIP_PENDING_CHANGES section 1.4

Dependencies: –

Supersedes: –

A-GEO-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current

Caution: local geometry; global quotient and matter attachment separate
Assessment: source Lie-triple arc
Verifier: generated-algebra certificate, not shipped
Precommit: N/A
Artifact: Lie-triple tensor; so(4,4) invariants and isomorphism
Source: Rev32.5 scalar geometry; Track-2 Paper A
Dependencies: –
Supersedes: v1.2.1 A-GEO-01 before the Rev32.5_S300 source/release re-point

A-INT-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: quadratic refinements remain separate
Assessment: S303-S307
Verifier: Smith-form and pairing certificates, not shipped
Precommit: N/A
Artifact: integral basis and lattice certificates
Source: Earlier Track-2 Paper A integral interface
Dependencies: –
Supersedes: –

A-SUB-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: full arrays and verifier required
Assessment: source substrate arc
Verifier: closure/Jacobi/symplectic certificates, not shipped
Precommit: N/A
Artifact: basis_56, basis_133, generators, omega, verifier
Source: Rev32.5 substrate record; earlier Track-2 Paper A
Dependencies: –
Supersedes: v1.2.1 A-SUB-01 before the Rev32.5_S300 source/release re-point

A-SUB-02 – Certified / Loaded-correspondence / source-certificate-not-shipped / current

Caution: no physical truncation follows
Assessment: source projector arc
Verifier: projector certificate, not shipped
Precommit: N/A
Artifact: P54/P16 arrays and certificate
Source: Rev32.5 scalar geometry
Dependencies: –
Supersedes: v1.2.1 A-SUB-02 before the Rev32.5_S300 source/release re-point

B-BR-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: finite census; domain-wide completeness open
Assessment: S75 / A759
Verifier: character and kernel calculations, not shipped
Precommit: frozen 21-class census
Artifact: embedding_classes.csv and branching certificate required
Source: Rev32.5 Appendix F
Dependencies: –
Supersedes: v1.2.1 B-BR-01 before the Rev32.5_S300 source/release re-point

B-CH-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: finite charge-wall quantifier
Assessment: S80 / A761h
Verifier: rowspace certificate, not shipped
Precommit: frozen charge census
Artifact: charge_wall_certificate.json required
Source: Rev32.5 Appendix F
Dependencies: –
Supersedes: v1.2.1 B-CH-01 before the Rev32.5_S300 source/release re-point

B-COMP-01 – Structural / N/A / open/no-artifact / open

Caution: binding finite-census mode
Assessment: A1358 / S259 mode declaration
Verifier: no completed universal certificate
Precommit: N/A
Artifact: three completeness certificates
Source: S259 control sheet E
Dependencies: –
Supersedes: –

B-FUN-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current

Caution: compact frame not selected; corrected branching dimension-checked
Assessment: A685-A689; A696
Verifier: s588, source-reported
Precommit: N/A
Artifact: loaded field dictionary and anomaly verifier required
Source: Rev32.5 Paper 1
Dependencies: –
Supersedes: v1.2.1 B-FUN-01 before the Rev32.5_S300 source/release re-point

B-HIG-01 – Proved / N/A / analytic-in-text / current

Caution: Higgs orientation must be loaded or selected by extra structure
Assessment: S231-S232
Verifier: commutant argument; s796 source control
Precommit: N/A
Artifact: analytic proof plus optional control
Source: Rev32.5 Appendix F
Dependencies: –
Supersedes: v1.2.1 B-HIG-01 before the Rev32.5_S300 source/release re-point

B-SHD-01 – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: no quantum-stability or hypercharge claim
Assessment: S77-S80
Verifier: classical potential/charge scans, not shipped
Precommit: frozen scan
Artifact: shadow_charge_comparison.json required
Source: Rev32.5 Appendix F
Dependencies: –
Supersedes: v1.2.1 B-SHD-01 before the Rev32.5_S300 source/release re-point

B-UNI-01 – Structural / Loaded-correspondence / source-certificate-not-shipped / current*Caution:* uniqueness is not emergence*Assessment:* S76 / D756*Verifier:* finite completion enumeration, not shipped*Precommit:* frozen comparison class*Artifact:* completion census required*Source:* Rev32.5 Appendix F*Dependencies:* –*Supersedes:* v1.2.1 B-UNI-01 before the Rev32.5_S300 source/release re-point**C-73-01 – Proved / Conditional-readout / source-certificate-not-shipped / current***Caution:* not a low-energy mass theorem*Assessment:* S229 / Appendix K theorem 4.3*Verifier:* Frobenius/trace certificate not shipped*Precommit:* N/A*Artifact:* trace-weight certificate*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-73-01 before the Rev32.5_S300 source/release re-point**C-COMP-01 – Certified / N/A / source-certificate-not-shipped / current***Caution:* finite scan, not a classification theorem*Assessment:* A1049-A1052*Verifier:* candidate sweep, not shipped*Precommit:* frozen candidate list*Artifact:* NO_GO_DOMAIN and outputs required*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-COMP-01 before the Rev32.5_S300 source/release re-point**C-DEM-01 – Proved / Loaded-correspondence / analytic-in-text / current***Caution:* ultraviolet normalization, not low-energy equality*Assessment:* s238-s240 / Appendix K*Verifier:* source Reynolds/Schur certificate plus in-text argument*Precommit:* N/A*Artifact:* invariant-space basis and commutant certificate required for reproduction*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-DEM-01 before the Rev32.5_S300 source/release re-point**C-LEAK-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current***Caution:* raw cubic is not already physical Yukawa*Assessment:* A1048*Verifier:* component norm certificate, not shipped*Precommit:* N/A*Artifact:* raw/projected arrays*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-LEAK-01 before the Rev32.5_S300 source/release re-point**C-NOGO-01 – Structural / N/A / registry-only / current***Caution:* does not exclude composite or nonperturbative dynamics*Assessment:* A1049-A1052*Verifier:* depends on exact claims and finite diagnostics above*Precommit:* N/A*Artifact:* scope statement*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-NOGO-01 before the Rev32.5_S300 source/release re-point**C-RANK-01 – Proved / N/A / analytic-in-text / current***Caution:* two-derivative parent only*Assessment:* A1052*Verifier:* source check plus displayed metric argument*Precommit:* N/A*Artifact:* edge metric certificate*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-RANK-01 before the Rev32.5_S300 source/release re-point**C-RES-01 – Proved / N/A / analytic-in-text / current***Caution:* parent must derive residues and thresholds*Assessment:* Paper C linear algebra*Verifier:* rank calculation reproduced in text*Precommit:* N/A*Artifact:* incidence matrix*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-RES-01 before the Rev32.5_S300 source/release re-point**C-RUN-01 – Certified / N/A / source-certificate-not-shipped / current***Caution:* illustrative trajectory; not an all-threshold theorem*Assessment:* source running diagnostic*Verifier:* RGE code/output not shipped*Precommit:* frozen boundary conditions*Artifact:* beta functions, inputs and output hash required*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-RUN-01 before the Rev32.5_S300 source/release re-point

C-TRI-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current*Caution:* existence and invariance; uniqueness not assumed*Assessment:* Rev28 Appendix K theorem 2.1*Verifier:* trilinear invariance verifier, not shipped*Precommit:* N/A*Artifact:* component tensor and derivation checks*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-TRI-01 before the Rev32.5_S300 source/release re-point**C-YUK-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current***Caution:* one generation; no coefficient hierarchy*Assessment:* A1048*Verifier:* component census, not shipped*Precommit:* frozen loaded dictionary*Artifact:* field dictionary and projected tensor arrays*Source:* Rev32.5 Appendix K*Dependencies:* –*Supersedes:* v1.2.1 C-YUK-01 before the Rev32.5_S300 source/release re-point**D-73-01 – Proved / Conditional-readout / source-certificate-not-shipped / current***Caution:* signed-residue route closed negative*Assessment:* S116; S229*Verifier:* source trace and LSZ diagnostics*Precommit:* N/A*Artifact:* not shipped*Source:* Rev32.5 Papers 0/2/7; Appendices I/K*Dependencies:* –*Supersedes:* v1.2.1 D-73-01 before the Rev32.5_S300 source/release re-point**D-CHI-01 – Certified / N/A / source-certificate-not-shipped / current***Caution:* no direct chi search before response map*Assessment:* A1431-A1432*Verifier:* source exhaustive test*Precommit:* frozen ratio/support vector*Artifact:* not shipped*Source:* Rev32.5 Appendices O/S/X*Dependencies:* –*Supersedes:* v1.2.1 D-CHI-01 before the Rev32.5_S300 source/release re-point**D-LEP-01 – Structural / Loaded-correspondence / source-certificate-not-shipped / current***Caution:* target-first provenance; dimension ratio is not by itself a mass exponent; divide-by-dimension step is argued by analogy; measured tau anchor and QED matching are external*Assessment:* Rev32.5 Paper 2 re-tier; A616/A618/A636/A637; S281 cold-review sync*Verifier:* Rev32.5 Paper 2 pp.33-34 source audit; current scientific certificate not shipped*Precommit:* N/A*Artifact:* not shipped; formula and coefficient-gap accounting reproduced in Paper D v1.3*Source:* Rev32.5 Paper 2 pp.33-34, 'Sprint 3' and 'Rev29 re-tiering: m_mu/m_tau'; Appendix O, 'The authoritative charged-lepton ledger'*Dependencies:* measured m_tau; loaded physical attachment of p=8/3 and C=sqrt(2)/10; external QED/Koide chain*Supersedes:* v1.2 stale source locator pp.31-32**D-LEP-02 – Structural / External-input / external-source / current***Caution:* not derived from J3(Os)*Assessment:* A636-A637*Verifier:* algebraic solve reproducible; empirical premise external*Precommit:* N/A*Artifact:* registry row*Source:* Rev32.5 Paper 2; Appendix O*Dependencies:* –*Supersedes:* v1.2.1 D-LEP-02 before the Rev32.5_S300 source/release re-point**D-MIX-01 – Proved / Conditional-readout / source-certificate-not-shipped / current***Caution:* normal ordering assumed; ladder- and interface-conditional; not a derived ordering theorem*Assessment:* Rev32.5 S300.24 dependency propagation*Verifier:* analytic formula plus source-line audit*Precommit:* N/A*Artifact:* Track-2 v1.3 Paper D; SOURCE_LOCATOR_AUDIT_REPORT.json*Source:* Rev32.5 Paper 5 pp.78-80 / p5_neutrino_cp_violation.tex:60 and 147-149 key "normal ordering — conditional on the R_d ladder"*Dependencies:* normal ordering; Structural R_d ladder; undeclared propagation-eigenstate interface; loaded correspondence map*Supersedes:* v1.2.1 D-MIX-01 wording that named normal ordering and correspondence but not the full ladder/interface dependency

D-MIX-02 – Proved / Conditional-readout / source-certificate-not-shipped / current

Caution: physical octant provenance CONTESTED; internal 7/16 theorem retained; A1566 lane-adjudicated, PI ruling pending; v1.3.1 will carry ruling

Assessment: Rev32.5 sealed hold; A1566 lane adjudication pending PI

Verifier: Rev32.5 Paper 3 hold cell and A1566 disposition record

Precommit: N/A

Artifact: 03_HOLD/A1566_DISPOSITION_EXCERPT.md; Track-2 v1.3 hold note

Source: Rev32.5 Paper 3 pp.57-59 / p3_ckm_pmns_mixing.tex:633-640 key "provenance contested"

Dependencies: –

Supersedes: v1.2.1 D-MIX-02 before the A1566 lane adjudication and Rev32.5 contested hold

D-MIX-03 – Structural / Conditional-readout / registry-only / current

Caution: round-trip squaring premise remains

Assessment: s502/A1275

Verifier: source readout audit

Precommit: N/A

Artifact: not shipped

Source: Rev32.5 Paper 3

Dependencies: –

Supersedes: v1.2.1 D-MIX-03 before the Rev32.5_S300 source/release re-point

D-MIX-04 – Proved / Conditional-readout / source-certificate-not-shipped / current

Caution: conditional readout; loaded frame; normal ordering; Structural R_d ladder; undeclared propagation-eigenstate interface; Dirac benchmark

Assessment: Rev32.5 dependency propagation

Verifier: source orbit certificate

Precommit: N/A

Artifact: not shipped

Source: Rev32.5 Paper 5 pp.78-82 / p5_neutrino_cp_violation.tex:47,60,147-149,263

Dependencies: V3 orbit theorem; loaded frame; normal ordering; R_d ladder; propagation-eigenstate interface; Dirac benchmark

Supersedes: v1.2.1 D-MIX-04 wording that did not name the full ladder/interface dependency

D-MIX-05 – Proved / Loaded-correspondence / registry-only / current

Caution: exact weight inside a Loaded first-row route; exact-framework and measured-angle readouts are distinct; comparator SL-11

Assessment: Rev32.5 comparator reconciliation; D1249 item 1

Verifier: Rev32.5 Paper 3 source audit; comparator_census_v13.py

Precommit: S258; S300 correction

Artifact: COMPARATOR_REGISTRY_V13.json; COMPARATOR_CENSUS_REPORT.json

Source: Rev32.5 Paper 3 pp.46,48,54 / p3_ckm_pmns_mixing.tex:157-162,212-222,568-576 key "0.225247"

Dependencies: Route B; corrected NuFIT 6.1 comparator; PDG direct |V_us| comparator

Supersedes: v1.2.1 D-MIX-05 values 0.22526/+1.20 sigma and 0.22687/+3.21 sigma

D-MIX-06 – Structural / Loaded-correspondence / registry-only / current

Caution: Structural; factor 9 unforced; A1566 dependent cap held pending PI; comparator SL-13

Assessment: Rev32.5 comparator reconciliation and A1566 hold

Verifier: Rev32.5 Paper 3 source audit; comparator_census_v13.py

Precommit: N/A

Artifact: COMPARATOR_REGISTRY_V13.json; 03_HOLD/A1566_DISPOSITION_EXCERPT.md

Source: Rev32.5 Paper 3 pp.46,48,54,58 / p3_ckm_pmns_mixing.tex:165,217,581,633-640

Dependencies: DET-7 integer; selected integer 9; theta23 physical attachment; A1566 PI ruling

Supersedes: v1.2.1 D-MIX-06 before the Rev32.5 comparator and A1566 hold

D-MIX-07 – Structural / Loaded-correspondence / registry-only / current

Caution: inherits Route-B loading; comparator SL-12; 0.003855 retained only as a labelled rounding control

Assessment: Rev32.5 comparator reconciliation

Verifier: Rev32.5 Paper 3 source audit; comparator_census_v13.py

Precommit: N/A

Artifact: COMPARATOR_REGISTRY_V13.json; COMPARATOR_CENSUS_REPORT.json

Source: Rev32.5 Paper 3 pp.46,48,54 / p3_ckm_pmns_mixing.tex:165-170,217-219,576-580

Dependencies: –

Supersedes: v1.2.1 D-MIX-07 before the exact 0.003862/-0.17 sigma convention

D-MIX-08 – Structural / Loaded-correspondence / registry-only / current

Caution: candidate construction; step (B) circular as selection derivation; comparator objects SL-19 and SL-20; bare-phi control fits better

Assessment: Rev32.5 candidate-class and comparator reconciliation

Verifier: Rev32.5 Paper 3 source audit; comparator_census_v13.py

Precommit: N/A

Artifact: COMPARATOR_REGISTRY_V13.json; COMPARATOR_CENSUS_REPORT.json

Source: Rev32.5 Paper 3 pp.47-51,55 / p3_ckm_pmns_mixing.tex:236,402-444,583-590

Dependencies: –

Supersedes: v1.2.1 D-MIX-08 comparator wording and any stale conditional-theorem UX

D-MIX-H – Structural / N/A / registry-only / current

Caution: three theorem-level mathematical rows; V_CKM=I

Assessment: P0-31 / S258

Verifier: s959 source-reported

Precommit: S258

Artifact: registry row

Source: REV29 note section 1.1

Dependencies: –

Supersedes: v1.2.1 D-MIX-H before the Rev32.5_S300 source/release re-point

D-OBS-01 – Structural / N/A / open/no-artifact / open

Caution: PREMISE-GRADE-4-RESPONSE; basepoint placeholder; no Pi_full or CKM; output face remains open

Assessment: Rev32.5 Appendix T carrier arc

Verifier: source-line audit; shipped A1553-A1561 verification artifacts through Rev32.5 resolver

Precommit: N/A

Artifact: Rev32.5 machinery and resolver; Technical Appendix F v1.3

Source: Rev32.5 Appendix T pp.311-314 / appendix_t_cartan_observation.tex:946-1079 key "Canonical six-face ledger"

Dependencies: theory-selected basepoint subgroup; microscopic support-restoring observation map

Supersedes: v1.2.1 D-OBS-01 before the declared response premise and six-face carrier arc

D-OCC-01 – Structural / Loaded-correspondence / source-certificate-not-shipped / current

Caution: failure demotes selector

Assessment: A1349-A1350

Verifier: source selector kernels

Precommit: sealed continuation

Artifact: not shipped

Source: Rev32.5 Appendix M

Dependencies: –

Supersedes: v1.2.1 D-OCC-01 before the Rev32.5_S300 source/release re-point

D-SCL-COUNT – Proved / N/A / source-certificate-not-shipped / current

Caution: scoped census theorem

Assessment: A1353-A1355

Verifier: s741 source-reported

Precommit: sealed symmetry census

Artifact: not shipped

Source: Rev32.5 Appendix X

Dependencies: –

Supersedes: v1.2.1 D-SCL-COUNT before the Rev32.5_S300 source/release re-point

D-SCL-KILL – Structural / N/A / registry-only / current

Caution: falsification clause

Assessment: S259 control sheet C

Verifier: registry rule

Precommit: N/A

Artifact: registry row

Source: Rev32.5 Appendix X; S259

Dependencies: –

Supersedes: v1.2.1 D-SCL-KILL before the Rev32.5_S300 source/release re-point

D-SCL-VALUE – Input / External-input / external-source / current

Caution: not a derived absolute scale

Assessment: source registry

Verifier: external measurement snapshot

Precommit: N/A

Artifact: source measurement

Source: Rev32.5 Appendix X

Dependencies: –

Supersedes: v1.2.1 D-SCL-VALUE before the Rev32.5_S300 source/release re-point

E-CHG-01 – Structural / N/A / open/no-artifact / open

Caution: do not infer solved magnitude sector from sign ledger; 64Ge carries radius plus screening debts

Assessment: Rev32.5 Paper 9 charge-magnitude retype

Verifier: no closure verifier

Precommit: N/A

Artifact: open charge-coherence kernel

Source: Rev32.5 Paper 9 p.130 / p9_nuclear_cluster_tier.tex:436-444

Dependencies: –

Supersedes: v1.2.1 E-CHG-01 before the Rev32.5 charge-magnitude soft-flank wording

E-FUN-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current*Caution:* no continuum field theory*Assessment:* A1349 / s706*Verifier:* source generator checks*Precommit:* S226 menu freeze*Artifact:* not shipped*Source:* Rev32.5 Paper 9*Dependencies:* –*Supersedes:* v1.2.1 E-FUN-01 before the Rev32.5_S300 source/release re-point**E-GAP-01 – Certified / Conditional-readout / source-certificate-not-shipped / current***Caution:* finite category, not nuclear EFT*Assessment:* A1350-A1353*Verifier:* source categorical checks*Precommit:* frozen menu*Artifact:* not shipped*Source:* Rev32.5 Paper 9*Dependencies:* –*Supersedes:* v1.2.1 E-GAP-01 before the Rev32.5_S300 source/release re-point**E-HOY-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current***Caution:* separate scored category*Assessment:* A1356-A1357*Verifier:* source calculation/receipt*Precommit:* frozen 10 percent bar*Artifact:* not shipped*Source:* Rev32.5 Paper 9*Dependencies:* –*Supersedes:* v1.2.1 E-HOY-01 before the Rev32.5_S300 source/release re-point**E-KER-01 – Structural / Loaded-correspondence / registry-only / current***Caution:* three coefficients on three initial nuclei*Assessment:* A1349*Verifier:* freedom audit*Precommit:* formula filed before scores*Artifact:* registry row*Source:* Rev32.5 Paper 9*Dependencies:* –*Supersedes:* v1.2.1 E-KER-01 before the Rev32.5_S300 source/release re-point**E-LAD-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current***Caution:* no continuum Hamiltonian inference*Assessment:* A1356-A1357*Verifier:* source trace calculations*Precommit:* blind vaults*Artifact:* not shipped*Source:* Rev32.5 Paper 9*Dependencies:* –*Supersedes:* v1.2.1 E-LAD-01 before the Rev32.5_S300 source/release re-point**E-LED-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current***Caution:* no global likelihood or discovery claim*Assessment:* A1349-A1357*Verifier:* receipt ledger not shipped*Precommit:* multiple frozen bars*Artifact:* ledger and receipts required*Source:* Rev32.5 Paper 9*Dependencies:* –*Supersedes:* v1.2.1 E-LED-01 before the Rev32.5_S300 source/release re-point**E-PROS-01 – Structural / N/A / registry-only / open***Caution:* prospective publication gate*Assessment:* v1.0 hostile review response*Verifier:* future sealed test*Precommit:* future precommit required*Artifact:* not yet created*Source:* Hostile publication review*Dependencies:* –*Supersedes:* –**E-SCL-COUNT – Proved / N/A / source-certificate-not-shipped / current***Caution:* scoped theorem*Assessment:* A1353-A1355*Verifier:* s741 source-reported*Precommit:* sealed census*Artifact:* not shipped*Source:* Rev32.5 Appendix X*Dependencies:* –*Supersedes:* v1.2.1 E-SCL-COUNT before the Rev32.5_S300 source/release re-point**E-SCL-KILL – Structural / N/A / registry-only / current***Caution:* falsification clause*Assessment:* S259 control sheet C*Verifier:* registry rule*Precommit:* N/A*Artifact:* registry row*Source:* Rev32.5 Appendix X; S259*Dependencies:* –*Supersedes:* v1.2.1 E-SCL-KILL before the Rev32.5_S300 source/release re-point**E-SCL-VALUE – Input / External-input / external-source / current***Caution:* not an absolute-scale derivation*Assessment:* source registry*Verifier:* external measurement snapshot*Precommit:* N/A*Artifact:* source data*Source:* Rev32.5 Appendix X*Dependencies:* –*Supersedes:* v1.2.1 E-SCL-VALUE before the Rev32.5_S300 source/release re-point

E-SI-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: 0.334 percent passed the pre-answer 1 percent bar; neither sharp nor miss; scoped negative only; readout fork separate

Assessment: A1542-A1545, PI ruling S294, Rev32.5

Verifier: s1104/s1112/s1115 family and source audit

Precommit: 1 percent and disjunctive 0.1 percent gates

Artifact: Rev32.5 machinery s1104, s1112, s1115 and expected outputs

Source: Rev32.5 Paper 9 pp.129-130 / p9_nuclear_cluster_tier.tex:364-434 key "direct annular second-moment attachment closed negative"

Dependencies: frozen-bar protocol; tested connected-Markov/perturbative class

Supersedes: v1.2.1 E-SI-01 broad two-circulation-open wording

E-YM-01 – Structural / N/A / open/no-artifact / open

Caution: no nuclear-EFT or Clay wording

Assessment: standing Paper 9 fence

Verifier: no completed construction

Precommit: N/A

Artifact: open continuum functor

Source: Rev32.5 Paper 9

Dependencies: –

Supersedes: v1.2.1 E-YM-01 before the Rev32.5_S300 source/release re-point

F-ACT-01 – Proved / Conditional-readout / source-certificate-not-shipped / current

Caution: does not select the particular realized outcome

Assessment: A1449

Verifier: s929 source-reported

Precommit: s928 preregistered gates

Artifact: record-process artifacts not shipped

Source: Rev32.5 Appendix T section 12

Dependencies: –

Supersedes: v1.2.1 F-ACT-01 before the Rev32.5_S300 source/release re-point

F-CONF-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: requires positive contour/regulator/measure

Assessment: A1441

Verifier: s919-V9 source-reported

Precommit: S252

Artifact: symbolic verifier not shipped

Source: Rev32.5 Appendix T section 6

Dependencies: –

Supersedes: v1.2.1 F-CONF-01 before the Rev32.5_S300 source/release re-point

F-EIN-01 – Structural / N/A / open/no-artifact / open

Caution: finite-regulator existence is not GR

Assessment: Rev28 Executive State Map

Verifier: no linearized-spectrum calculation

Precommit: N/A

Artifact: open object

Source: Rev32.5 Appendix T

Dependencies: –

Supersedes: v1.2.1 F-EIN-01 before the Rev32.5_S300 source/release re-point

F-FAITH-01 – Structural / N/A / open/no-artifact / open

Caution: face 6 remains output gate; no subgroup selected; no normalization forcing row

Assessment: Rev32.5 Appendix T final state

Verifier: no completed kernel

Precommit: N/A

Artifact: open object

Source: Rev32.5 Appendix T p.314 / appendix_t_cartan_observation.tex:1040-1079

Dependencies: –

Supersedes: v1.2.1 F-FAITH-01 before the two missing objects were separately named

F-GEO-01 – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: finite/local tier; face 2 definitional only in shipped candidate universe; not a universal impossibility theorem

Assessment: A1553-A1561 carrier arc

Verifier: Rev32.5 source and shipped house/lane verification artifacts

Precommit: S251-S252 prebuilds

Artifact: Rev32.5 Appendix T source; s1148-s1153 verification family; locator registry

Source: Rev32.5 Appendix T pp.311-314 / appendix_t_cartan_observation.tex:946-1079

Dependencies: –

Supersedes: v1.2.1 F-GEO-01 before the Rev32.5 carrier-arc fold

F-MASS-01 – Structural / N/A / open/no-artifact / open

Caution: Declared premise; Loaded-correspondence only if adopted; physical output open

Assessment: Rev32.5 Appendix T premise and output fence

Verifier: no interacting two-point verifier

Precommit: N/A

Artifact: open generator/response/pole

Source: Rev32.5 Appendix T p.314 / appendix_t_cartan_observation.tex:1040-1069

Dependencies: –

Supersedes: v1.2.1 F-MASS-01 before the response alternatives and placeholder were printed

F-MM-01 – Structural / Conditional-readout / registry-only / current*Caution:* not the full particle/gauge/mass action*Assessment:* A1440*Verifier:* s918 source-reported*Precommit:* S252*Artifact:* not shipped*Source:* Rev32.5 Appendix T section 5*Dependencies:* –*Supersedes:* v1.2.1 F-MM-01 before the Rev32.5_S300 source/release re-point**F-MOSQ-01 – Certified / Conditional-readout / source-certificate-not-shipped / current***Caution:* rank-two support certificate is tier-local; no Pi_full; no CKM*Assessment:* A1558-A1560*Verifier:* shipped carrier-arc certificates and source-line audit*Precommit:* S253*Artifact:* Rev32.5 Appendix T machinery; Technical Appendix F v1.3*Source:* Rev32.5 Appendix T pp.312-314 / appendix_t_cartan_observation.tex:990-1046*Dependencies:* –*Supersedes:* v1.2.1 F-MOSQ-01 before the rank-three/relative-rank-two fold**F-OMOS-01 – Certified / Conditional-readout / source-certificate-not-shipped / current***Caution:* record quotient only; physical realization not selected; basepoint placeholder*Assessment:* Rev32.5 Appendix T carrier arc*Verifier:* s926 source-reported*Precommit:* s925 preregistered gates*Artifact:* channel, POVM, Choi, dilation and whitening artifacts not shipped*Source:* Rev32.5 Appendix T pp.310-314 / appendix_t_cartan_observation.tex:900-1079*Dependencies:* –*Supersedes:* v1.2.1 F-OMOS-01 before the source distinguished the microscopic leg and basepoint placeholder**F-RP-01 – Certified / Conditional-readout / source-certificate-not-shipped / current***Caution:* continuum limit and coherent boundary separate*Assessment:* A1442*Verifier:* s920 source-reported*Precommit:* S252*Artifact:* heat-kernel, Gram and OS artifacts not shipped*Source:* Rev32.5 Appendix T section 7*Dependencies:* –*Supersedes:* v1.2.1 F-RP-01 before the Rev32.5_S300 source/release re-point**F-SIGN-01 – Certified / N/A / source-certificate-not-shipped / current***Caution:* positive completion required*Assessment:* A1442*Verifier:* s920-W1/W2 source-reported*Precommit:* S252*Artifact:* matrix certificate not shipped*Source:* Rev32.5 Appendix T section 7*Dependencies:* –*Supersedes:* v1.2.1 F-SIGN-01 before the Rev32.5_S300 source/release re-point**G-EVID-01 – Structural / N/A / registry-only / current***Caution:* publication evidence boundary; analytic-in-text is an allowed discharge route; locator never substitutes for artifact*Assessment:* A1541 plus D1249 source-package audit*Verifier:* evidence-gap builder; validate_manifest_v13.py; proof_artifact_resolver_v13.py*Precommit:* N/A*Artifact:* EVIDENCE_GAPS_CURRENT.csv/json; MANIFEST_VALIDATION_REPORT.json; PROOF_ARTIFACT_RESOLUTION_REPORT.json*Source:* Rev32.5 Appendix X p.318 / appendix_x_zero_parameter_input_ledger.tex:77 key "not embedded in this PDF"; sealed release machinery/tools/resolve_proof_artifacts.py*Dependencies:* –*Supersedes:* v1.2.1 evidence activation before the Rev32.5 resolver and exact source tree were shipped**G-FRONT-01 – Structural / N/A / open/no-artifact / open***Caution:* no Pi_full or CKM; face 6 open*Assessment:* Rev32.5 Appendix T carrier-arc state*Verifier:* source-line audit and claim-manifest dependency check*Precommit:* N/A*Artifact:* Technical Appendix F v1.3; SOURCE_LOCATOR_AUDIT_REPORT.json*Source:* Rev32.5 Appendix T p.314 / appendix_t_cartan_observation.tex:1071-1080*Dependencies:* –*Supersedes:* v1.2.1 G-FRONT-01 before the basepoint and microscopic legs were separately typed**G-MIX-01 – Structural / N/A / registry-only / current***Caution:* A1566 lane adjudication recorded but not installed; no value moves; exact-framework Vus 0.225247*Assessment:* D1249 item 1 plus item 2 HOLD*Verifier:* source_locator_audit_v13.py; comparator_census_v13.py; hold-note check*Precommit:* S258 freeze*Artifact:* SOURCE_LOCATOR_AUDIT_REPORT.json; COMPARATOR_CENSUS_REPORT.json; A1566 hold record*Source:* Rev32.5 Paper 3 pp.46-59 / p3_ckm_pmns_mixing.tex:157-236 and 633-640*Dependencies:* –*Supersedes:* v1.2.1 G-MIX-01 comparator pair and pre-A1566 source state

G-NUC-01 – Certified / Loaded-correspondence / source-certificate-not-shipped / current

Caution: finite protocol, not nuclear EFT; no magnitude or island-of-stability claim

Assessment: Rev32.5 Paper 9 synchronization

Verifier: Paper E v1.3 addendum plus Rev32.5 locator audit

Precommit: D1060/D1061 precommits

Artifact: Paper E v1.3; Rev32.5 s1104/s1112/s1115/s1122-s1124/s1129 machinery

Source: Rev32.5 Paper 9 pp.129-131 / p9_nuclear_cluster_tier.tex:364-455

Dependencies: –

Supersedes: v1.2.1 G-NUC-01 before the annular/isospin/neutron-proton retypes

G-SCL-01 – Structural / N/A / registry-only / current

Caution: scoped to winding architecture

Assessment: A1353-A1355

Verifier: s741, source-reported

Precommit: sealed null guard

Artifact: not shipped

Source: Rev32.5 Appendix X; S259 control sheet C

Dependencies: –

Supersedes: v1.2.1 G-SCL-01 before the Rev32.5_S300 source/release re-point

G-TAX-01 – Structural / N/A / registry-only / current

Caution: binding controlled vocabulary; no slash-statuses; historical 17/17 narrowed to fifteen computed plus two literal premise/fence assertions

Assessment: A1541 R1; D1249 Rev32.5 synchronization

Verifier: validate_manifest_v13.py; validator_mutation_tests.py; validator_vacuity_lint.py

Precommit: N/A

Artifact: MANIFEST_VALIDATION_REPORT.json; VALIDATOR_MUTATION_REPORT.json; VALIDATOR_VACUITY_LINT.json

Source: Rev32.5 Paper 1 p.25 / p1_peirce_gauge_group.tex:129 key "\emph{interface-type} statement"; Appendix M pp.240-248 / appendix_m_order5_clock_occupation.tex:45-58 key "M=60=2h(E_8)"; Track-2 s1086 semantic audit

Dependencies: –

Supersedes: v1.2.1 G-TAX-01 without mutation-based negative controls and before the Rev32.5 source re-point

A-VAC-01 – Structural / Loaded-correspondence / analytic-in-text / current

Caution: conditional algebraic selector; repaired gap-pair/Lucas proof; distinguish from A-VAC-02 variational theorem; ordering not selected frame-free

Assessment: A641/Q5A; A1519 repair; Rev32.5 distinction

Verifier: analytic proof reproduced in Paper A v1.2 addendum

Precommit: N/A

Artifact: Paper A v1.3 addendum

Source: Rev32.5 Appendix E; s1085 distinction

Dependencies: H0 unit determinant; H1 inversion symmetry or golden-field units; stated Gram condition

Supersedes: v1.1 A-VAC-01 wording that treated DET-7 only as one undifferentiated Route-B premise

A-CLK-01 – Proved / N/A / source-certificate-not-shipped / current

Caution: finite frozen 56-frame; no external-time or observable attachment

Assessment: A1512

Verifier: s1047-s1048 source-reported; house residual 8e-16

Precommit: S276

Artifact: not shipped

Source: Rev32.5 Appendix E pp.165-166, clock-identity and selector-kernel sections

Dependencies: frozen braid representation; active rank-24 carrier

Supersedes: v1.2 stale source locator pp.156-157

A-GBR-01 – Proved / N/A / source-certificate-not-shipped / current

Caution: finite braid representation; does not select occupation or a physical clock

Assessment: A1512-A1513

Verifier: s1047-s1050 source-reported

Precommit: S276

Artifact: not shipped

Source: Rev32.5 Appendix H p.194, golden-bridge / hyperbolic-word section

Dependencies: $A^2-3A+P=0$; frozen 56-frame

Supersedes: v1.2 stale source locator p.183

C-PAR-01 – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: selector tier only; boundary object remains loaded; continuum, pole and LSZ remain open; positive couplings are not numerically fixed

Assessment: A1506-A1511

Verifier: two cold referees 6/6; two-host byte-identical source report

Precommit: s1043/s1045; S274-S275

Artifact: not shipped

Source: Rev32.5 Appendix E pp.164-166, 'The parent-action closure: complete-conditional at the selector tier'

Dependencies: loaded boundary object $[j] \leq L$ boundary $\leq E^*$; frozen 56-frame; K_{dyn}

Supersedes: v1.2 stale source locator pp.156-158

C-SPLIT-01 – Proved / N/A / source-certificate-not-shipped / current

Caution: subspace forcing only; selector weights and nonlinear action shape are separate questions

Assessment: A1514

Verifier: s1051 source-reported; projector distances $\leq 5.1e-14$

Precommit: S278

Artifact: not shipped

Source: Rev32.5 Appendix E p.166, transport-defect split; Appendix S p.291, zero-price joint-defect projectors

Dependencies: loaded plane P_B ; transport defect Δ_T

Supersedes: v1.2 stale source locators p.157 and pp.280-282

C-RCHAR-01 – Certified / Conditional-readout / source-certificate-not-shipped / current

Caution: variational representation theorem; no microscopic principle selects this nonlinear action

Assessment: A1515

Verifier: s1052 source-reported; finite-difference floor 7.6e-8

Precommit: S278

Artifact: not shipped

Source: Rev32.5 Appendix S pp.291-292, 'The rank-character variational theorem'

Dependencies: zero-price joint-defect projectors; loaded plane P_B

Supersedes: v1.2 stale source locator pp.280-281

C-PHIDIAG-01 – Structural / Conditional-readout / registry-only / current

Caution: WIN-OBSTRUCTED; selection fails; word minimality plus four relations; moduli increase under class enlargement

Assessment: A1516; PI adoption S279

Verifier: s1054-s1055 source-reported

Precommit: S279

Artifact: principle and obstruction reproduced in Paper C v1.3

Source: Rev32.5 Appendix S pp.291-293, four-dimensional action-moduli obstruction and adopted principle

Dependencies: rank-character completion class; minimal-word restriction

Supersedes: v1.2 stale source locator pp.281-282

C-TENS-01 – Proved / N/A / source-certificate-not-shipped / current

Caution: every ten names its ten; equal dimension identifies nothing; physical=selector in the frozen carrier; boundary is distinct; no physical bridge selected

Assessment: A1522-A1523; Rev32 carrier fence

Verifier: s1067/s1070 and s1052/s1053 source-reported

Precommit: S283-S288

Artifact: three-ten and Casimir certificates not shipped

Source: Rev32.5 Appendix X clause-27 fence; Appendix S

Dependencies: frozen 56 carrier; K_dyn module actions; Casimir normalization

Supersedes: v1.1 two-ten wording that did not name the physical/vector ten

C-RHALF-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: declared-class result; not the retired calibration; not the separate 7/3 trace theorem; one-host lane kernel and partial house verification

Assessment: A1487/D1180

Verifier: s989 source-reported; house first-order arithmetic only

Precommit: S? D1176-D1180 string

Artifact: not shipped

Source: Rev32.5 Appendix X p.339, compact two-scale natural-Gram exclusion

Dependencies: declared natural Gram family

Supersedes: v1.2 stale source locator pp.325-326

A-VAC-02 – Proved / N/A / source-certificate-shipped / current

Caution: conditional on golden-field positive units and non-degeneracy; variational theorem only; no ordered frame, physical selector, observable, or tier move; downstream DET-7 attachments unchanged

Assessment: D1221 / Rev32.5 s1085

Verifier: s1085 20/20; present run twice byte-identical and exact expected-output match

Precommit: S300

Artifact: s1085_routeB_lucas_variational.py plus expected output and two rerun receipts

Source: Rev32.5 Appendix E and machinery/s1085

Dependencies: positive units of Z[phi]; abc=1; non-degenerate spectrum; Gram functional

Supersedes: v1.1 Route-B remark that DET-7 remained only an imposed premise within Route B

A-ROMAN-Z2-01 – Certified / N/A / source-certificate-shipped / current

Caution: finite-invariant obstruction only; not a global functor no-go; refined interface moved to A-ROMAN-Z2-02

Assessment: D1221 / Rev32.5 s1086; v1.3 hostile-review reconciliation

Verifier: s1086 exact reproduction plus s1086 semantic-scope audit; computed obstruction predicate retained

Precommit: S300

Artifact: s1086 source, expected output, two archived reruns, and s1086_semantic_scope_audit.py/report

Source: Rev32.5 Paper 1 Roman-adjoint section; Appendix M clock inventory; machinery/s1086

Dependencies: Roman adjoint map; clock finite inventories

Supersedes: v1.2 combined A-ROMAN-Z2-01 row that also carried the uncomputed refined interface

D-SCL-ANCHORS – Input / External-input / registry-only / current

Caution: do not collapse abstract class count, operational calibrations, and anchor usage into one physical-input claim

Assessment: Rev32.5 S300.11

Verifier: Appendix X two-readout statement; Track-2 propagation

Precommit: N/A

Artifact: registry row

Source: Rev32.5 Appendix X input-count box

Dependencies: current formula-chain audit

Supersedes: v1.1 input-count wording that could be read as a completed physical one-input economy

A-COLD-SCOPE-01 – Historical / N/A / analytic-in-text / current

Caution: withdrawal/scope row; A630 six zeros cited Certified but not reverified at Rev32.5; no new positive theorem

Assessment: A1538 findings 1 and 5; Rev32.5 S300.4/S300.7

Verifier: Rev32.5 print disposition and Track-2 negative grep

Precommit: N/A

Artifact: Rev32.5 change log; v1.3 staleness report

Source: Rev32.5 Appendix A and change log

Dependencies: representation theory; Artin theorem scope

Supersedes: Schur-zero inference and blanket Artin loop-protection language

C-BCFAM-01 – Input / N/A / registry-only / current

Caution: PI class ruling, not a theorem; no dynamics coefficient selected; freeze-first posture remains binding

Assessment: S284 PI ruling; A1524

Verifier: Rev32.5 Appendix E print receipt

Precommit: S284 predeclaration

Artifact: registry row

Source: Rev32.5 Appendix E, S284 rulings

Dependencies: bridge-class dossier; C4 gate for CLASS-W

Supersedes: v1.1 absence of the S284 family ruling

C-H2-TRIV-01 – Proved / N/A / source-certificate-not-shipped / current

Caution: minimal-class theorem; does not select C0 or its rank; never re-bill target-triviality as an input

Assessment: D1214 to A1527

Verifier: 24/24 lane gates; independent house reconstruction of commutants and dimension inequality

Precommit: S284

Artifact: D1214 source/results not shipped in this Track-2 package

Source: Rev32.5 Appendix E Rev32 addendum

Dependencies: minimal H2 carrier; K_dyn simplicity and commutant census

Supersedes: v1.1 price ledger that had not discharged target-triviality

C-H2-RANK-01 – Input / N/A / registry-only / current

Caution: rank-two is a PI predeclaration; coefficient values are fenced and absent; rank one deferred pending a separate principle; rank three excluded in the minimal class

Assessment: S284 PI predeclaration; A1527-A1528

Verifier: Rev32.5 Appendix E print receipt

Precommit: S284 before coefficient examination

Artifact: registry row

Source: Rev32.5 Appendix E Rev32 addendum

Dependencies: C-H2-TRIV-01; rank $\leq$ 2 minimal-class theorem

Supersedes: v1.1 H2 rank left undeclared

C-C0-INDEP-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: scoped to the frozen H2 tier and banked selector polynomials; a future microscopic S_joint may still derive the coefficients; no coefficient value printed

Assessment: D1217 to A1530

Verifier: lane x2; house x2; s1077 14/14 x2 source-reported

Precommit: S285 coefficient fence

Artifact: countermodel pair and verifier not shipped

Source: Rev32.5 Appendix E Rev32 addendum

Dependencies: C-H2-RANK-01; frozen H2 gates and control ledger

Supersedes: v1.1 census-negative/search wording for the six-coefficient freedom

C-OS-FINITE-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: no continuum limit; no reflection-positive continuum measure; no interacting pole; no LSZ; one step on the 17-stage continuum map

Assessment: D1216 to A1529

Verifier: two-host byte-certified source report

Precommit: S284

Artifact: finite OS and toy-resolvent certificates not shipped

Source: Rev32.5 Appendix E Rev32 addendum

Dependencies: finite Gaussian regulator and staged OS contract

Supersedes: v1.1 continuum frontier with no passed OS subgate

C-QUAD-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: census only; no counted copy is selected; any future use must name the copy and price the choice; direct linear boundary-to-physical bridge remains absent

Assessment: A1523 / D1210 return

Verifier: two-host carrier census source-reported

Precommit: S283

Artifact: quadratic-bridge representation certificates not shipped

Source: Rev32.5 Appendix S section 9.3

Dependencies: three-ten K_dyn module actions

Supersedes: v1.1 statement only that a future bridge must be nonlinear or symmetry-breaking

C-FSEL-C-01 – Certified / N/A / source-certificate-not-shipped / current

Caution: scoped negative, not a universal impossibility theorem; reopen on a genuinely new independently derived invariant or condition family; Phi_diag remains an adopted principle

Assessment: D1220 to A1533

Verifier: s1053/s1055 restoration; s1083 11/11 house control source-reported; filed inventory audit

Precommit: S287 declared family

Artifact: F-SEL(c) census artifacts not shipped

Source: Rev32.5 Appendix E and Appendix S

Dependencies: banked condition inventory; C-PHIDIAG-01; three-ten Casimir data

Supersedes: v1.1 statement that refined condition families remained the one unexplored action-shape direction

C-SEL27-01 – Input / N/A / registry-only / current

Caution: PI ruling pending; coefficient fence intact; live research selection frontier is G7 motivation

Assessment: Rev32 S288 status

Verifier: Rev32.5 Appendix E status print

Precommit: N/A

Artifact: registry row

Source: Rev32.5 Appendix E status

Dependencies: C-C0-INDEP-01; C-FSEL-C-01

Supersedes: v1.1 open-selection inventory before F-SEL(c) closure

F-DYN-SEED-01 – Structural / N/A / registry-only / current

Caution: corroboration, not derivation; no measured time, energy order, mass, or continuum claim

Assessment: Rev32 interconnect sweep

Verifier: printed reconciliation in Rev32.5 Appendix X

Precommit: N/A

Artifact: registry row

Source: Rev32.5 Appendix X clause-27 fence

Dependencies: A-GBR-01; motivated dynamics seed A1268-A1270

Supersedes: v1.1 lack of an explicit dynamics-seed/no-order reconciliation

A-ROMAN-Z2-02 – Structural / N/A / registry-only / current

Caution: descriptive type compatibility only; unconstructed; no identity of Z2 actions; no occupation or physical-time attachment; not a computed s1086 gate

Assessment: v1.3 hostile-review reconciliation

Verifier: static semantic audit of s1086 plus direct comparison of the two action types

Precommit: N/A

Artifact: s1086_semantic_scope_audit.py/report; Technical Appendix F v1.3 analysis

Source: Rev32.5 Paper 1 Roman-adjoint interface fence; Appendix M Mobius orientation-parity description

Dependencies: A-ROMAN-Z2-01 finite obstruction; open Mobius spinor bundle; explicit equivariant-interface construction

Supersedes: positive/interface half of the combined v1.2 A-ROMAN-Z2-01 row

D-AX6-01 – Input / Conditional-readout / registry-only / current

Caution: readout identity does not derive selector; matching scale remains scheme-dependent; never use bare ψ^*

Assessment: Rev32.5 AX6 naming repair

Verifier: source-line audit

Precommit: N/A

Artifact: Paper D v1.3 and source locator report

Source: Rev32.5 Paper 4 p.73 / p4_higgs_ewsb.tex:617-650 key "two objects, one name"; Appendix X p.318 / appendix_x_zero_parameter_input_ledger.tex:90

Dependencies: exact-colour orbit; declared polarization postulate; threshold/matching-scale bridge

Supersedes: v1.2.1 undifferentiated AX6 input row

D-NU-R1-01 – Certified / N/A / source-certificate-shipped / current

Caution: falsifies mass predicate, not the Jordan-adjoint carrier or PMNS mixing geometry

Assessment: A712; Rev32.5 two-reading audit

Verifier: s1104_neutrino_dm2_two_readings.py plus expected output and source audit

Precommit: N/A

Artifact: Rev32.5 machinery/s1104_neutrino_dm2_two_readings.py and expected output

Source: Rev32.5 Paper 5 p.79 / p5_neutrino_cp_violation.tex:88-115

Dependencies: literal eigenvalue-to-mass attachment

Supersedes: no prior dedicated Track-2 row; expands the v1.2.1 neutrino caveat

D-NU-R2-01 – Structural / Conditional-readout / source-certificate-shipped / current

Caution: selected $d=2$; 10.9-13.9 percent local look-elsewhere; boundary corollaries are not consequences of R2

Assessment: s1104/A1546 C2; PI ruling S294

Verifier: s1104_neutrino_dm2_two_readings.py plus expected output and source audit

Precommit: N/A

Artifact: Rev32.5 machinery/s1104_neutrino_dm2_two_readings.py and expected output

Source: Rev32.5 Paper 5 p.80 / p5_neutrino_cp_violation.tex:115-149 key "Two readings, one family"

Dependencies: normal ordering; selected $d(\nu)=2$; R_d ladder; undeclared propagation-eigenstate interface

Supersedes: no prior dedicated Track-2 R2 physical-reading row

E-ANN2-01 – Certified / N/A / source-certificate-shipped / current

Caution: scoped class negative; energy coefficient remains open; not a universal annular no-go

Assessment: A1544-A1545, S294

Verifier: s1112/s1115 plus source audit

Precommit: S294 class statement

Artifact: Rev32.5 machinery/s1112_ct_knot_lens_three_walls.py; s1115_p1_sector_decomposition.py and expected outputs

Source: Rev32.5 Paper 9 pp.129-130 / p9_nuclear_cluster_tier.tex:364-434

Dependencies: connected Markov second moment; perturbative annular class

Supersedes: v1.2.1 general two-circulation-open wording

E-ISO-01 – Input / Loaded-correspondence / source-certificate-shipped / current

Caution: loaded isospin; Peirce 1/2 is scalar and gives $\chi=0$; no derived magnitude law

Assessment: s1122-s1124; PI ruling S294

Verifier: s1122/s1124 sources and expected outputs; source audit

Precommit: s1123 PRECOMMIT

Artifact: Rev32.5 machinery/s1122-s1124 and s1123 PRECOMMIT.json

Source: Rev32.5 Paper 9 p.131 / p9_nuclear_cluster_tier.tex:446-455 key "The isospin sector"

Dependencies: fixed-Z chain; selected coefficient; loaded field dictionary

Supersedes: no dedicated v1.2.1 isospin row

E-NP-01 – Input / N/A / open/no-artifact / open

Caution: without flip energy the sign is wrong; not a prediction

Assessment: s1129; PI ruling S294

Verifier: s1129 negative decomposition; no closing artifact

Precommit: N/A

Artifact: open: derive flip energy or a registered isospin action

Source: Rev32.5 Paper 9 p.131 / p9_nuclear_cluster_tier.tex:451-455; Appendix X p.341 / appendix_x_zero_parameter_input_ledger.tex:933

Dependencies: QCD isospin-breaking energy; u/d mass splitting or equivalent source

Supersedes: no dedicated v1.2.1 neutron-proton row

F-RESP-PREM-01 – Input / Conditional-readout / registry-only / current

Caution: PREMISE-GRADE-4-RESPONSE; declared not derived; alternatives printed

Assessment: A1560; declared S300

Verifier: source-line audit and 40-row normalization census receipt

Precommit: S300 declaration

Artifact: Technical Appendix F v1.3; Rev32.5 Appendix T source

Source: Rev32.5 Appendix T p.314 / appendix_t_cartan_observation.tex:1040-1062 key "PREMISE-GRADE-4-RESPONSE"

Dependencies: MOS bound; solder bound; PI branch declaration

Supersedes: v1.2.1 open normalized response without the declared branch

F-BASEPOINT-01 – Input / N/A / registry-only / current

Caution: DECLARED-BASEPOINT-PLACEHOLDER; no intrinsic basepoint; output face remains open

Assessment: A1561

Verifier: source-line audit

Precommit: N/A

Artifact: Technical Appendix F v1.3; Rev32.5 Appendix T source

Source: Rev32.5 Appendix T p.314 / appendix_t_cartan_observation.tex:1063-1069 key "DECLARED-BASEPOINT-PLACEHOLDER"

Dependencies: theory-selected stabilizer/subgroup

Supersedes: v1.2.1 unnamed microscopic basepoint debt

F-CARR-01 – Certified / Conditional-readout / source-certificate-shipped / current

Caution: scope every face; no universal impossibility claim; no output from carrier identity alone

Assessment: A1553-A1561

Verifier: s1148-s1153 verification family and source audit

Precommit: S297-S300 carrier arc

Artifact: Rev32.5 machinery/s1148-s1153 and expected outputs

Source: Rev32.5 Appendix T pp.311-314 / appendix_t_cartan_observation.tex:946-1079 key "Canonical six-face ledger"

Dependencies: locked candidate universe; finite carrier construction

Supersedes: no v1.2.1 carrier-arc row

F-ODD-01 – Structural / Conditional-readout / source-certificate-shipped / current

Caution: class/orbit is not a selected point; orientation bit unspent

Assessment: A1556-A1558

Verifier: carrier-arc verification artifacts and source audit

Precommit: S297-S299

Artifact: Rev32.5 machinery/s1148-s1150 and expected outputs

Source: Rev32.5 Appendix T pp.312-313 / appendix_t_cartan_observation.tex:970-1020

Dependencies: paired-shell polarization; covariant odd Hom class; torsor orientation

Supersedes: no v1.2.1 covariant odd-leg row

F-NORM-01 – Certified / N/A / source-certificate-shipped / current

Caution: bounds do not select $|\lambda \mu|=1$; alpha closure is permutation-class only

Assessment: A1558-A1560

Verifier: s1148-s1153 verification artifacts; source audit

Precommit: S298-S300

Artifact: Rev32.5 machinery/s1148-s1153 and expected outputs

Source: Rev32.5 Appendix T pp.312-314 / appendix_t_cartan_observation.tex:990-1062

Dependencies: finite CP/channel and solder constructions

Supersedes: no v1.2.1 normalization-census row

G-SRC-01 – Structural / N/A / source-certificate-shipped / current

Caution: frozen source ledger lacks IDs; corrected sidecar is explicit; six malformed minus exponents named

Assessment: D1249 and Amendment 1

Verifier: comparator_census_v13.py; source_locator_audit_v13.py; proof_artifact_resolver_v13.py

Precommit: S302 amendment

Artifact: SOURCE_LEDGER_REV32.csv; SOURCE_LEDGER_REV32_IDS_S302.csv; exact Rev32.5 tex; reports

Source: Rev32.5 Appendix X p.318 / appendix_x_zero_parameter_input_ledger.tex:77; D1249 Amendment 1

Dependencies: sealed Rev32.5 release; S302 stable-ID/correction sidecar

Supersedes: v1.2.1 source apparatus based on the older sealed notebook and without Rev32.5 stable comparator IDs

Machine-readable emissions

- SGTOE_Track2_v1_3_CLAIM_MANIFEST.csv/json
- SGTOE_Track2_v1_3_EVIDENCE_GAPS_CURRENT.csv/json
- SGTOE_Track2_v1_3_SOURCE_LOCATOR_MAP.csv
- MANIFEST_VALIDATION_REPORT.json
- VALIDATOR_MUTATION_REPORT.json