

VERSF Standard Model Derivation Audit - August 2026

Post-CKP-2.4 Master Ledger, Physical-Admission Boundary, and Required Paper Programme

Keith Taylor

VERSF Theoretical Physics Programme - Standard Model Closure Series

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STATUS

UPDATED PROGRAMME AUDIT / STRUCTURAL AND CONDITIONAL DERIVATION

SUBSTANTIALLY ADVANCED / PHYSICAL STANDARD MODEL CERTIFICATE NOT ISSUED

*Current critical path: complete H_{CMR} + select ξ_i -> neutral / gauge / QCD / global completion -> one
whole-action physical boundary*

*This paper supersedes the July planning ledger as the current programme-level audit. It does not supersede the primary
theorem papers it cites.*

Abstract

This paper audits the VERSF Standard Model derivation programme after the completion of the post-July sequence comprising D36-R1, K7-CBR-1, ASAC-1, HCMR-MR1, NSTC-1, FGQT-1, PFHBA-7, HM4-EX1, the complete PFDMI-1 execution programme, GQSC-1R, and CKP-2.4/RRHF-FD1. The audit preserves the July thirty-gate ledger for continuity, but regrades each gate against the later controlling paper and replaces the old writing order with a new critical path. The result is mixed but materially stronger than the July position. The faithful gauge quotient and four-dimensional bundle census are closed on the frozen representation ledger; a recurrent record-preserving primitive instrument and a full-faithful field-dependent source have been constructed; a four-regulator HCMR candidate converges at second order; the charged Yukawa tensor and one CKM matrix are genuinely derived at conditional action level; and a finite retained reflection-positive global transfer forces the strong phase to zero in every ordinary positive full-support completion. At the same time, several later papers prove exact non-identifiability results. The current action does not yet return the event-level directing state and costs, the post-commitment copy-maintenance dynamics, a uniquely selected internal frame, an orientation-odd physical branch selector, the completion residue and matching scale, or any direct neutral mass blocks. The baseline CKM return is definite but empirically poor, physical confinement remains non-identifiable, and the full continuum chiral gauge measure is not constructed. The programme is therefore advanced at mathematical and conditional action levels, but the physical Standard Model boundary remains unadmitted. The paper concludes with an explicit sixteen-paper programme. Each proposed paper is given a source boundary, exact return, preregistered pass condition, failure meaning, and dependency position.

General reader summary

The programme has moved beyond the stage where its main problem was whether a finite construction could be written down. It now has several complete, reproducible and regulator-stable constructions. It also has exact theorems proving that some apparently plausible shortcuts cannot select a physical answer. That combination is scientific progress: the open problem is no longer vague, but it is not yet small.

The strongest positive result is the charged-flavour paper. One frozen representation-resolved history functional returns the charged Yukawa tensor and therefore one CKM matrix without reading measured masses or mixings during execution. That is a real conditional derivation. The matrix is nevertheless empirically poor: its five-quantity comparison is approximately chi-squared 291. The unique lowest-order quadratic correction has an exact form and exact threefold democracy, but the action has not returned its physical strength, branch readout or phase. The local completion metric is phase-isotropic, so further local diagonalisation cannot select the favourable phase.

The strongest global result is the exact faithful gauge topology. The physical gauge group is the product divided by a common Z_6 kernel, the faithful bundles over four-dimensional complexes are classified, and the complete correlated topological charge lattice is explicit. A later retained-measure paper constructs a positive finite transfer and proves that every ordinary positive full-support completion has zero strong phase. It simultaneously proves that the present retained data cannot determine confinement strength or choose between the conjugate orientation branches.

The most important negative result concerns physical admission. A four-regulator candidate can converge beautifully and still fail to be the unique physical action. The present corpus contains families of inequivalent lifts with identical quadratic responses. It has enough capacity to carry the Standard Model carrier, but capacity does not select the field-to-mark map. The neutral sector makes this especially stark: thirty physical real parameters remain unfixed, and any target neutrino spectrum can be reproduced by a family of supplied inputs. A physical neutral certificate is therefore correctly refused until the mass blocks are differentiated from the same action.

The old statement that the programme was about 87 percent complete can still be understood as a count of structural tasks attempted or papers written. It should not be used as a percentage of physical Standard Model derivation. On the present audit, the mathematical structure is roughly 85-90 percent developed, the conditional action-level construction roughly 70-75 percent, and primitive physical admission only roughly 35-40 percent. The balanced full-programme planning estimate is about 60-65 percent, with a wide uncertainty because several remaining papers are falsification-exposed.

BOTTOM LINE

VERSIF now possesses a substantial conditional Standard Model construction and several exact sector theorems. It does not yet possess one complete, uniquely selected, same-branch, absolutely scaled and continuum-admitted Standard Model boundary. The next work must complete the physical H_CMR and the absolute scale before downstream numerical sectors can be promoted.

Executive verdict

Layer	Current estimate	Interpretation
Mathematical / representation structure	85-90%	Many exact finite and group-theoretic theorems; global quotient and bundle census closed on the frozen ledger.
Conditional action-level construction	70-75%	Full-faithful source, recurrent instrument, charged tensor, retained global transfer and regulator executions exist under named premises.
Numerical Standard Model reproduction	45-50%	Charged spectra and one CKM returned, but CKM is poor; neutral, physical couplings, Higgs and confinement remain incomplete.
Primitive physical admission	35-40%	Event-level preparation, copy-maintenance, internal frame, branch selector and physical readouts are not jointly returned.
Continuum / scheme / pole completion	25-30%	Finite retained positivity exists; full chiral determinant line, continuum measure, complete scheme bridge and pole observables remain open.
Balanced planning estimate	60-65%	A work-planning blend only; not a theorem grade and not a probability of success.

Contents and audit route

- Source and supersession rules.** Which paper controls when the corpus contains multiple revisions.
- Audit vocabulary and scoring discipline.** How exact theorems, conditional action returns, negative certificates and physical admission are kept separate.
- Post-July advances.** What the later papers have actually changed.
- Updated thirty-gate ledger.** Every July gate regraded against the current corpus.
- Sector-by-sector physical audit.** Primitive action, topology, electroweak, flavour, neutral, QCD and continuum completion.
- Critical path.** Which missing objects block the largest number of downstream claims.
- Papers that now need writing.** Sixteen named manuscripts with inputs, pass conditions, failure meanings and dependencies.
- Final programme verdict.** What can and cannot now be claimed.

1. Source corpus, precedence and audit method

1.1 Controlling source corpus

The audit consumes thirteen current source objects. The July Master Ledger supplies the historical thirty-gate vocabulary. SMC-1U supplies the integrated chronology and the reduction to an incomplete H_CMR plus an unreconciled absolute scale. The post-July primary papers then control their own sectors. The complete 113-page PFDMI-1 revision supersedes the earlier 87-page version. D36-R1 supersedes the stale SMC-1U statement that the ln

2 branch failed reproducibility. CKP-2.4 controls charged flavour; GQSC-1R controls the retained global measure and strong-sector non-identifiability; NSTC-1 controls the current neutral boundary.

Ref.	Paper	Controlling role
[1]	July Master Ledger	Historical SM-1 to SM-30 gate names and prior writing queue.
[2]	SMC-1U	Integrated pre-final audit; current parts and Sections 43-44 govern its archived chronology.
[3]	D36-R1	Clock-convention reconciliation and revision-currency protocol.
[4]	K7-CBR-1	Record-preserving renewal and recurrent neutral information capacity.
[5]	ASAC-1	Conditional closure length / clock theorem and action / completion-scale no-goes.
[6]	HCMR-MR1	Four-regulator candidate execution and physical-admission refusal.
[7]	NSTC-1	Complete neutral execution contract and exact current-corpus no-go.
[8]	FGQT-1	Faithful Z6 quotient, bundle census, charge lattice and period lattice.
[9]	PFHBA-7	Sector-resolved recurrent pullback, non-identifiability and source-defect factorisation.
[10]	HM4-EX1	Full-faithful 334-variable source and graded compatibility certificates.
[11]	PFDMI-1 complete	Field-dependent instrument programme through EX2I / EX2J and its debt ledger.
[12]	GQSC-1R	Finite retained positive transfer, strong-phase zero and confinement no-go.
[13]	CKP-2.4 / RRHF-FD1	Conditional charged-flavour derivation, empirical CKM audit and axle admission boundary.

1.2 Supersession rules

- **Latest controlling result wins.** Where a later theorem evaluates the same typed object on the same carrier and readout, it supersedes the earlier grade.
- **Different typed objects do not supersede each other.** A reduced local negative cannot erase a cumulative charged-tensor return; a cumulative tensor return cannot promote a failed microscopic provenance test.
- **Integrity is not currency.** Hashes certify executed bytes. The revision registry determines whether those bytes remain the current source.
- **Positive construction is not physical selection.** Regulator convergence, positivity, rank sufficiency and an exact Fisher pullback establish a construction, not that the primitive action selected it.
- **No target rescue.** Observed masses, mixings, phases, branch signs or confinement scales enter only after the source object is frozen and sealed.

1.3 Audit grades

Grade	Meaning
EXACT	A theorem with all operands declared; no missing object of the same type.
EXACT ON FROZEN LEDGER	Exact once a named representation or carrier ledger is granted.
CONDITIONAL ACTION-LEVEL DERIVATION	Returned by differentiating a frozen action under explicit inherited premises.
CONDITIONAL PHYSICAL TRANSPORT	Follows uniquely after named physical projectors, scales or bridges are granted.
RETAINED PHYSICAL THEOREM	A complete finite retained statement that does not yet establish the full continuum object.

Grade	Meaning
EXECUTION CONTRACT CLOSED	The downstream algorithm and admission criteria are complete, but required source arrays are absent.
CLOSED NEGATIVE	A named proposed mechanism is proved unable to return the object.
NON-IDENTIFIABLE	A continuum of inequivalent physical outputs is compatible with the current premises.
SUPERSEDED / RETYPED	The historical gate is no longer the correct controlling formulation.
PHYSICALLY ADMITTED	Primitive action, readout, branch, scale, scheme and regulator requirements all pass together.
OPEN	The required object is not returned.

2. What has changed since the July ledger

Advance	Current result
Clock reproducibility	D36-R1 proves that $\ln 2$ and 0.185 are correct outputs of inequivalent discrete and continuous clocks. The numerical dispute is closed; primitive clock selection remains open.
Recurrent history	K7-CBR-1 replaces terminal absorption with record-preserving renewal, raising neutral Fisher rank from 0 to 21 and the K7 product rank to 867.
Full-carrier capacity	PFHBA-7 constructs exact sector-typed four-regulator pullbacks of the 102-dimensional HCMR parent, then proves a 34,152-dimensional typed lift family: capacity passes, provenance does not.
Full-faithful source	HM4-EX1 repairs the 108-dimensional gauge-source deficit with a 334-variable faithful source and obtains multiple graded compatibility passes.
Primitive field-dependent instrument	PFDMI-1 constructs the noncentral same-action carrier, closes the 72-dimensional Wilson quotient at linear order, derives the Fold/incidence bridge within a declared class, and reduces primitive scaling to one ruler.
Absolute scale	ASAC-1 and PFDMI-1 sharpen the length/clock chain, but the source-native ruler, serial composition, vacuum saturation, completion residue and Lambda-star remain open.
Four-regulator candidate	HCMR-MR1 closes the numerical convergence question: the candidate is positive and second-order convergent. Physical admission is refused on five independent structural grounds.
Gauge topology	FGQT-1 closes the exact faithful quotient, bundle census, lift obstruction, correlated charge lattice and topological-period lattice on the frozen representation ledger.
Strong phase and confinement	GQSC-1R constructs a retained reflection-positive transfer and forces strong phase zero for ordinary positive full-support completions, while proving confinement strength and orientation are non-identifiable from the current corpus.
Charged flavour	CKP-2.4 establishes a genuine conditional action-level charged-flavour derivation and one controlling CKM matrix. The matrix is empirically poor; the quadratic axle form is exact but its physical installation is unreturned.
Neutral sector	NSTC-1 closes the execution contract but proves that direct Y_{nu} , M_{R} and M_{L} arrays, the branch, the readout and the absolute scale are absent; the physical certificate is refused.

2.1 The programme-level reduction

The mature programme-level obstruction is not the original list of thirty independent debts. The later corpus compresses the active primitive critical path to a complete physical commitment-maintenance action plus a selected absolute ruler. That compression must not be overstated: the physical H_{CMR} is incomplete, not merely non-unique. Its event-level preparation sector and post-commitment maintenance sector do not yet exist as action-level returns.

{ event preparation, copy-maintenance, score / frame / branch selection } -> complete H_{CMR}

{ source-native x_i , K_{comp} , Z_{comp} , clock and action bridge } -> physical scale and Λ_{star}

Once those objects exist, the downstream Standard Model sectors can be run without target insertion. Until they exist, higher precision in the present candidate cannot create the missing information.

3. Updated thirty-gate ledger

The table preserves the July gate labels for continuity. Several gates are now superseded as primary calculation routes; that is recorded rather than forcing every later result into an obsolete question. None of the entries below is graded physically admitted unless branch, readout, scale and scheme are all present.

3.1 Gates SM-1 to SM-5

Gate	July target	Current grade	Controlling result	Release condition
SM-1	Weak-orientation admissibility	CONDITIONAL / OPEN	PFDMI derives a committed 1+6 role reduction and CKP uses a frozen weak carrier. No primitive theorem yet proves $P_W = P_L$ or uniquely left-handed weak coupling.	A physical weak-orientation theorem from the complete H_{CMR} .
SM-2	Full weak-doublet Hessian	CONDITIONAL ACTION PASS / PHYSICAL AXLE OPEN	RRHF returns the charged tensor; CKP proves the unique lowest-order quadratic axle form. Stage I returns no physical coefficient, internal lift, readout or phase.	Same-action full-carrier projection returning c_{ax} , I_{int} , P_{vis} and θ_{phys} .
SM-3	Leakage support trace	OPEN	No complete physical weak-commitment / neutral operator exists. NSTC explicitly has no neutral numerical block.	Direct neutral block plus exact leakage projector and support trace.
SM-4	Ordered chi readout	SUPERSEDED / RETYPED	The controlling issue is now event-level preparation and record-conditioned directing measure, not a standalone chi readback. The action form alone is non-identifying.	Return Delta I_{rho} , ν_{rho} , realised state, costs and phases from the action.
SM-5	Gauge census closure	STRONG CONDITIONAL PASS	PFDMI recovers seven atoms and four completion channels within an inherited faithful carrier; FGQT proves the exact faithful quotient and census on the frozen ledger.	Primitive derivation of the carrier/census rather than recovery inside it.

3.2 Gates SM-6 to SM-10

Gate	July target	Current grade	Controlling result	Release condition
SM-6	Weak octant sign	OPEN	No physical PMNS matrix or neutral branch is returned.	Same-action neutral sector and data-independent octant / CP branch.
SM-7	Adjoint removal, positivity, microcausality	PARTIAL RETAINED PASS	GQSC supplies finite retained reflection positivity and a positive polar transfer. Full CAR/Fock chiral OS positivity, determinant line, locality and microcausality remain open.	Continuum chiral measure and genuine fermionic OS / locality theorem.
SM-8	Kappa / localisation convention	RETYPED / PARTIAL	Clock conventions are separated; action rescaling is quotiented at the primitive layer; Fold/incidence and rate relations are derived conditionally. Source-native ruler and serial composition remain open.	Source-native clock/ruler theorem and action-derived serial-composition law.
SM-9	Convention and normalisation audit	MAJOR PARTIAL PASS	D36 clock, $q=6Y$ topology, action/phase typing and source-currency rules are explicit. Native-to-continuum scheme, pole, threshold and coordinate-metric conventions remain unfinished.	One common convention, scheme and covariance ledger used by all physical sectors.
SM-10	Substrate anomaly descent	CONDITIONAL STRONG PASS	PFDMI obtains anomaly-rigid hypercharge within the census; local anomaly arithmetic is exact. Primitive census provenance, global anomalies and bordism remain open.	Primitive anomaly descent plus faithful spin-bordism / determinant-line audit.

3.3 Gates SM-11 to SM-15

Gate	July target	Current grade	Controlling result	Release condition
SM-11	Generation and species census	CONDITIONAL STRUCTURAL PASS	Blind central-projector census recovers seven atoms with fermionic multiplicity three inside the inherited carrier. Generation ordering, internal Hamiltonian and primitive pre-representation origin remain open.	Action-derived census and dynamical generation-mixing operator.
SM-12	World-to-framework occupancy	MAJOR CONDITIONAL PASS	Void selection chooses the neutral singlet sector under declared axioms; occupancy topology is exact. The realised directing state and event-level occupancy law are not returned.	Event-level preparation theorem and physical occupancy/readout.
SM-13	Hermitian lift / frame firewall	CLOSED NEGATIVE FOR CURRENT LOCAL MECHANISM	PFDMI leaves a large internal-frame family; CKP proves the local completion metric phase-isotropic. The current local stack cannot select the physical branch or favourable phase.	New orientation-odd same-action coupling or proof of exact output equivalence.
SM-14	Strange confinement dynamics	NON-IDENTIFIABLE / CANDIDATE ONLY	GQSC proves every triality gap and sign are compatible with present retained data. A wall candidate exists but its colour typing and longitudinal bridge are unproved.	RWCT colour typing, wall coefficient and physical flux-tube bridge.
SM-15	Physical half-lazy gate	SUPERSEDED AS PRIMARY ROUTE	The historical scalar mass law is no longer the controlling charged-flavour route. Any surviving role must descend from the physical H_CMR and common scheme.	Either recover it from H_CMR or retire it explicitly.

3.4 Gates SM-16 to SM-20

Gate	July target	Current grade	Controlling result	Release condition
SM-16	Higgs potential and radial mode	CONDITIONAL SCALAR RESPONSE ONLY	HCMR returns a stable dimensionless scalar response. Absolute scale, completion residue, physical potential, branch and Higgs pole remain open.	Same-action Higgs potential, Z_comp, Lambda_star and pole bridge.
SM-17	Charm-hinge magnitude	SUPERSEDED / EMPIRICAL AUDIT OPEN	The full charged tensor supersedes isolated hinge formulas. Relative spectra exist, but absolute masses, scheme and detailed empirical comparison are incomplete.	Charged-spectrum physical transport and pole certificate.
SM-18	Coloured participation fraction	SUPERSEDED / PROVENANCE OPEN	Participation is encoded in the conditional tensor and source scores; the original fraction is not independently a physical theorem.	Recover or retire the factor in the full H_CMR source audit.
SM-19	Tau suppression projection	SUPERSEDED / ABSOLUTE LEPTON OPEN	The charged-lepton tensor is returned conditionally, but the historical suppression factor is not the controlling physical derivation.	Physical charged-lepton scale and scheme from the common action.
SM-20	Variational suppression identity	SUPERSEDED / NOT REQUIRED AS SEPARATE GATE	The full tensor route makes the old scalar identity non-controlling unless it is claimed as provenance.	Explicit crosswalk proving equivalence or formal retirement.

3.5 Gates SM-21 to SM-25

Gate	July target	Current grade	Controlling result	Release condition
SM-21	Charged-lepton absolute scale	OPEN	One-anchor metric calibrations exist, but source-native xi, Lambda_star and the scheme/pole bridge do not.	Absolute ruler and common completion scale followed by lepton pole transport.
SM-22	Full Yukawa matrices	CHARGED CONDITIONAL PASS / NEUTRAL OPEN	Y_u, Y_d and Y_e are returned at two regulators through RRHF. Y_nu, M_R and M_L are absent.	Complete same-action charged readout and direct neutral blocks.
SM-23	Quark current-mass projection	CONDITIONAL TRANSPORT PASS	SMC Appendix A closes self-consistent one-loop quark threshold transport at its declared order. Absolute source scale, finite scheme and pole masses remain open.	Native-to-MSbar bridge, thresholds, covariance and pole certificate.

Gate	July target	Current grade	Controlling result	Release condition
SM-24	PMNS closure Hamiltonian	EXECUTION CONTRACT CLOSED / NUMERICAL OPEN	NSTC fixes the exact Takagi, mixing, nonunitarity and covariance contract. No source-complete neutral operator is supplied.	Populate NSTC from direct same-action blocks and issue pass/fail.
SM-25	Neutrino mass / charge conjugation	PHYSICAL CERTIFICATE REFUSED	The current corpus leaves 30 physical real neutral parameters plus a conjugate branch pair. Any target can be forged from supplied matrices.	Direct Y_{ν} , M_R , M_L or exact $M_L=0$ theorem, branch and scale.

3.6 Gates SM-26 to SM-30

Gate	July target	Current grade	Controlling result	Release condition
SM-26	Gauge action and coupling values	CONDITIONAL CANDIDATE / SCORE SELECTION OPEN	HCMR returns candidate stiffnesses and couplings; PFDMI closes local Wilson rank. Relaxable score weights, endpoint frame, physical matching scale and running are unselected.	Same-action score ledger, gauge-response normalisation and common-scale running.
SM-27	QCD confinement and running	RETAINED MECHANISM PASS / PHYSICAL CONFINEMENT REFUSED	A positive retained transfer and candidate linear potential exist. Triality gap, string tension, string breaking and even gap sign are non-identifiable from current inputs.	Edge-resolved colour action, derived wall/bridge and physical strong-sector execution.
SM-28	Strong CP and theta sector	STRONG RETAINED PASS / CONTINUUM OPEN	FGQT closes the lattice; GQSC forces the complete retained strong phase to zero for ordinary positive full-support completions. Full chiral determinant line and bordism remain open.	Continuum chiral global-measure theorem confirming or obstructing the retained result.
SM-29	Quantum gauge completion	FINITE RETAINED PARTIAL PASS	Finite reflection positivity and positive transfer are established. Gauge fixing, BRST/Ward identities, chiral measure, loops, unitarity and all-order renormalisation are not.	Continuum quantum gauge completion with scheme and S-matrix bridge.
SM-30	Final derivation audit	INTERIM AUDIT PASS / FINAL GATE OPEN	This paper updates the ledger and paper queue. A final certificate cannot issue while physical rows remain open or refused.	Final object-by-object table with no physical Owed rows.

4. Sector-by-sector physical audit

4.1 Primitive history, instrument and H_{CMR}

The primitive-instrument programme is one of the largest advances since July. The identity-field candidate is now exactly excluded as a source-selection mechanism. The replacement field-dependent instrument closes the physical Wilson quotient locally at rank 72, supplies a persistent-ledger renewal isometry and obtains a conditional Fold/incidence bridge. PFHBA and HM4 establish that the declared source stack can be embedded and is compatible in multiple graded sectors. These results do not yet yield a complete physical H_{CMR} .

The missing action content is explicit. Event-level preparation must return the extension-information functional, directing measure, realised amplitude, irreversible costs and relative phases. Post-commitment maintenance must return the copy law, copy stiffness, basin stability and physical readout. The direct and relaxable score weights, maximal-positivity rule and internal endpoint frame must be selected from the same marks. The resulting source jets must then reproduce RCMO, RRHF and FCHI blindly at four regulators and both conjugate branches.

Primitive-action verdict

The corpus has proved existence, capacity, compatibility and several local identifiability statements. It has not yet returned one complete and unique physical commitment-maintenance action. This is a new-information problem, not a request for higher numerical precision.

4.2 Gauge group, representations and global topology

The gauge-topology sector is now among the strongest. On the frozen $q=6Y$ representation ledger the common kernel is exactly Z_6 , the faithful group is uniquely $[SU(3) \times SU(2) \times U(1)_q]/Z_6$ and is canonically $S(U(3) \times U(2))$, and faithful bundles over a four-complex are classified by one H_2 and two H_4 classes. The correlated charge and theta-period lattices are explicit. PFDMI independently recovers the seven representation atoms and canonical generators inside an inherited graded carrier. The residual debt is therefore no longer the group arithmetic. It is primitive provenance of the carrier, source-selected score weights, the full chiral determinant line and global anomaly/bordism completion.

4.3 Absolute scale, clock and electroweak breaking

The clock disagreement is repaired: the discrete Fold and continuous-rate calculations are inequivalent clocks. The $K=7$ orbit fixes exact dimensionless relations, and PFDMI reduces primitive scaling to one physical ruler after quotienting an action-representation redundancy. One-anchor metrological values near 84 micrometres exist, and a conditional one-token branch near 62.7 micrometres exists in the wider corpus. None is yet a source-native prediction. The remaining scale problem is tied to the vacuum-saturation execution, serial composition, unit-winding provenance, capacity-to-phase typing and the completion kinetic residue.

For the electroweak sector, the current HCMR calculation returns stable dimensionless scalar ratios, not the fully admitted potential or Higgs pole. A physical Higgs theorem must use the same selected H_CMR , the same completion residue and the same native-to-continuum scheme as the fermion and gauge sectors.

4.4 Charged flavour and CKM

CKP-2.4 materially upgrades the programme. The charged tensor and one CKM matrix are now action-level returns under the frozen premise package. The bosonic and CAR/Fock differentiations agree at approximately 1.9×10^{-14} , and the matrix is unitary. The empirical verdict is negative: the controlling baseline gives chi-squared approximately 290.7 on the five-quantity comparison and severely underproduces $|V_{td}|$ and J . This is a falsifiable output, not a fitted construction.

The D6 result that every odd-power descent is forbidden and the quadratic axle is unique at the lowest admissible order is exact. Its threefold democracy and geometric $1/\sqrt{3}$ sharing are exact. What is not returned is the physical norm c_ax , the full internal lift, the visible readout and the physical phase. The local completion metric is exactly phase-isotropic. The favourable 150-degree execution remains quarantined; the current action does not select it.

$P_vis \ I_int \ Q(u) = \rho_mult \ exp(i \ \theta_phys) \ E_r$ - all of P_vis , I_int , ρ_mult , θ_phys and r must be returned

4.5 Neutral fermions and PMNS

NSTC-1 is a complete contract and a refusal. It proves the correct Takagi residual gauge, the exact nonunitarity identity, the branch-conjugation map, the scale orbit, the parameter count and the inverse-construction forgery theorem. The present corpus supplies no direct Y_nu , M_R or M_L array, no exact $M_L=0$ theorem, no nontrivial neutral readout, no physical branch and no completion scale. The set of compatible neutral sectors remains thirty-dimensional in physical real parameters, doubled by a conjugate pair. A PMNS comparison before direct source return would be mathematically non-evidential.

4.6 Strong sector, strong phase and confinement

FGQT-1 and GQSC-1R create a sharp split. The faithful global topology and the retained positive transfer are real theorems. The frozen quark determinant phase is zero, and every ordinary positive full-support faithful-lattice completion has trivial topological character; the retained strong phase is therefore zero. The same positive retained stack cannot orient the conjugate branch and cannot determine the triality gap, string tension or string-breaking spectrum. An exhaustive positive centre-transfer family realizes every gap and sign without changing imported local

data. A colour-typed wall candidate is therefore useful only after the edge-resolved colour action and temporal-to-longitudinal bridge are derived.

4.7 Continuum, scheme and pole observables

The programme remains furthest from completion at the final continuum layer. Finite retained reflection positivity does not construct the full chiral gauge measure. Conditional one-loop quark transport does not by itself provide the native-to-MSbar map, a complete threshold ledger, pole masses, pole widths or an S-matrix. These are not cosmetic finishing steps: without a common scheme and covariance, the numerical outputs of different sectors cannot be compared as one physical boundary.

5. Completion assessment

5.1 Why one percentage is misleading

The July 87 percent figure was useful as a measure of papers attempted and structural work completed. The later corpus shows why it cannot be carried forward as the percentage of a physical derivation. Several new papers close tasks by proving non-identifiability or refusing a certificate. Those are successful papers but they do not populate the physical Standard Model boundary. Conversely, a genuine conditional derivation such as the charged tensor deserves more credit than a structural outline even though its empirical output is poor.

This audit therefore reports five layers and a blended planning range. The ranges are deliberately broad. They measure work programme maturity, not truth probability and not confidence that the final result will agree with nature.

Layer	Range	Basis
Exact finite / representation structure	85-90%	Global quotient, bundle census, many rank, symmetry, support and no-go theorems are closed.
Conditional same-action construction	70-75%	Charged tensor, recurrent instrument, full-faithful source, retained transfer and candidate HCMR exist.
Numerical phenomenology	45-50%	Charged hierarchy and CKM exist but CKM fails; neutral, physical Higgs, couplings and confinement are absent.
Primitive physical admission	35-40%	The action does not yet select preparation, copy dynamics, internal frame, readout, branch or scale together.
Continuum / scheme / poles	25-30%	Retained positivity and conditional RG transport exist; full chiral measure, scheme and pole certificate do not.
Full programme planning blend	60-65%	The most useful replacement for the old single figure, with at least +/-8 percentage-point uncertainty.

5.2 Largest remaining blocks

Rank	Block	Missing objects	Downstream effect
1	Complete physical H_CMR	Event preparation, maintenance/copy, score weights, endpoint frame, readouts and orientation.	Blocks flavour promotion, gauge couplings, neutral blocks and whole-action admission.
2	Absolute ruler and completion scale	s_vac, xi, serial composition, unit winding, capacity-phase bridge, K_comp, Z_comp, Lambda_star.	Blocks all absolute masses, thresholds, Higgs and pole observables.
3	Neutral physical sector	Direct Y_nu, M_R, M_L, branch and Takagi certificate.	Blocks PMNS, neutrino masses and neutral thresholds.
4	Strong-sector coefficient	Colour typing, triality wall, longitudinal bridge, string breaking.	Blocks physical confinement and hadronic scale.

Rank	Block	Missing objects	Downstream effect
5	Continuum quantum completion	Determinant line, global anomalies, chiral OS, scheme, Ward/BRST, poles.	Blocks physical strong-phase promotion and precision predictions.

6. Revised critical path

Event preparation || copy-maintenance || score/frame selection

-> complete physical H_{CMR} -> branch/readout -> charged and neutral sector returns

Source-native $xi + K_{comp}/Z_{comp}$ -> Λ_{star} -> common gauge/Higgs/mass boundary

Colour action + global chiral measure + scheme/pole bridge -> physical HFB/RPC certificate

The symbol || denotes work that can proceed in parallel but must converge into one action. The first four new papers below are therefore immediate. The sector papers should not be allowed to fill missing source arrays by analogy or inverse reconstruction.

6.1 Work that should not be done next

- **No further CKM phase scan.** The favourable phase is already known to improve the fit; scanning it again adds no derivational information.
- **No higher-precision HCMR rerun on the same candidate.** The candidate already converges at second order; the blockers are structural.
- **No neutral diagonalisation with supplied matrices.** NSTC proves any target can be forged and the current corpus contains no load-bearing arrays.
- **No inverse Fisher lift presented as provenance.** PFHBA constructs thousands of exact lifts and proves their non-identifiability.
- **No positive-measure branch selector.** GQSC proves the retained positive quadratic stack is exactly orientation blind.
- **No direct identification of the geometric cutoff with Λ_{star} .** ASAC proves the completion stiffness and residue are independent required returns.

7. Papers that now need writing

The list below is the minimum current paper programme. It replaces the July order. Adjacent manuscripts may be combined only if the combined paper executes every named pass condition separately and preserves the stop rules. Each paper must ship its source manifest, revision-currency registry, machine-readable certificate and non-insertion seal.

7.1 Papers 1-2

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
1	HCMR-P1 The Event-Level Preparation, Extension-Information and Realised Directing-State Theorem	Immediate primitive front	Return $\Delta I_{\rho}(\eta)$, $\nu_{\rho}(\delta p)$, the realised directing state η or z , irreversible costs ΔS , and relative phases from one action at $n=3-6$.	Unique up to declared physical equivalence; all costs and phases frozen before downstream comparison; regulator and branch covariance pass.	A continuum of inequivalent preparations survives; no physical H_{CMR} , CKM axle or neutral readout can be admitted.	SM-4, SM-12, SM-13, SM-22, SM-26
2	HCMR-M1 The Post-Commitment Copy, Maintenance-Barrier and Basin-Stability Theorem	Immediate primitive front	Return if/when copying occurs, γ_{copy} , copy and maintenance costs, basin structure, survival rate and physical record readout.	The same action selects the copy law and proves stable persistent records across regulators; no economy	Record stability and measurement readout remain constitutive assumptions; the physical boundary cannot close.	SM-4, SM-7, SM-12, SM-30

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
				premise substitutes for dynamics.		

Paper 1 source boundary: PFDMI Gibbs-Haar preparation family, local action $M_i = -\ln a_i + \lambda \Delta S_i$, H_{CMR} response carrier, no CKM/PMNS access.

Paper 2 source boundary: Single-token primitive record, persistent-ledger renewal architecture, record/export carrier, no assumed environmental duplication.

7.2 Papers 3-4

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
3	PFDMI-S1 The Same-Action Score-Ledger, Maximal-Positivity and Endpoint-Frame Selection Theorem	Immediate primitive front	Derive direct and relaxable weights d_A, r_A, Z_A ; derive or reject maximal positivity; select the internal endpoint/current frame and seven central Hamiltonian coefficients.	One target-blind score and frame package, stable over an eta interval and both branches, with all local physical ranks retained.	Gauge couplings, internal Hamiltonian, masses and completion amplitudes remain non-identifiable.	SM-5, SM-10, SM-11, SM-26
4	PFDMI-R1 Blind Source-Jet Recovery and Four-Regulator Branch Certificate	Immediate execution front	Recover record, gauge, completion and CAR/Fock jets at their first nonzero differential orders; execute $n=3-6$ and $k=1,6$; issue the complete mixed-third-order certificate.	All predeclared residuals pass, convergence order is stable, and no target-dependent repair is made.	The declared conditional source stack is not the derivative of the primitive instrument and must be revised or abandoned.	SM-2, SM-5, SM-9, SM-22, SM-26

Paper 3 source boundary: Complete PFDMI field-dependent marks, full-faithful 334/2120-variable source, no HCMR target visibility.

Paper 4 source boundary: Outputs of Papers 1-3; frozen RCMO/RRHF/FCHI targets opened only after source hashes are sealed.

7.3 Papers 5-6

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
5	HCMR-2 The Complete Physical Commitment-Maintenance Action, Readout and Boundary-Operator Theorem	Integration front	Assemble one physical H_CMR ; return P_Y^{phys} , neutral addresses, all cross-blocks, $K_comp(p^2)$, complete readout operators and the exact physical equivalence group.	One positive same-branch action survives all source, readout, covariance, null and regulator tests without target access.	The programme has no unique physical boundary even before comparison with Standard Model data.	SM-1 to SM-13, SM-16, SM-22, SM-26
6	OOC-1 The Orientation-Odd Commitment Current and Exact Branch-Selection Theorem	Cross-sector branch front	Return a nonzero charged orientation-odd matrix element λ_kappa , or prove the two branches physically output-equivalent for every promoted observable.	A unique branch is selected upstream, or an exact equivalence theorem removes sign as a physical choice.	CP signs, flavour phase and neutral branch remain unselected; positive spectral measures cannot rescue them.	SM-6, SM-13, SM-24, SM-28

Paper 5 source boundary: Papers 1-4, the 104-dimensional response completion, complete cross-blocks and recurrent marked law.

Paper 6 source boundary: Complete H_CMR , GQSC conjugate-pair no-go, D36 orientation unitary and charged/neutral branch maps.

7.4 Papers 7-8

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
7	HCFC-1 The Holonomy-Conditioned Family Coupling and Physical CKM Completion Theorem	Charged-flavour completion	Return c_ax , I_int , P_vis , ρ_mult and $h(L_ax)$; install the returned axle in RRHF and issue one controlling CKM matrix.	One comparison loop is physically realised, the family matrix element is nonzero, and the resulting matrix is regulator stable before empirical comparison.	The RRHF baseline remains the only derived matrix; its empirical failure becomes a direct falsifier of the current charged-flavour action.	SM-2, SM-13, SM-22
8	ASCR-1 The Source-Native Absolute Ruler, Vacuum Saturation, Closure Clock and Completion-Residue Theorem	Immediate scale front	Compute s_vac , source-native ξ , serial composition, unit winding, capacity-to-phase typing, $K_comp(0)$, Z_comp and λ_star .	One action returns metres/seconds only through a declared metric bridge, and one λ_star is stable across sectors and regulators.	Absolute particle masses and thresholds remain non-identifiable; any prior micrometre/GeV value stays conditional calibration.	SM-8, SM-16, SM-21, SM-23, SM-26

Paper 7 source boundary: Complete H_CMR and OOC-1; AXD/HCFC carrier; no CKM target until seal.

Paper 8 source boundary: PFDMI EX2I/EX2J, ASAC, complete H_CMR , source-free common action.

7.5 Papers 9-10

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
9	GRCE-1 The Gauge-Response, Coupling Evaluation and Electroweak Matching Theorem	Downstream sector	Return $Z_3, Z_2, Z_q, g_s, g, g_{\text{prime}}, e, \sin^2 \theta_W$, matching scale, running and thresholds in one convention.	Couplings are outputs at a declared scale and reproduce under regulator refinement and scheme transport.	Gauge values remain candidate readbacks and cannot populate the physical boundary.	SM-9, SM-26, SM-29
10	EWHR-1 The Electroweak Vacuum, Higgs Potential and Radial Pole Theorem	Downstream sector	Return the physical branch, $\mu^2, \lambda, v, m_H, m_W, m_Z$, scalar stability and the radial pole with covariance.	One same-action potential and scale reproduce all scalar/gauge identities and survive common scheme transport.	The electroweak sector remains representation-level rather than a physical vacuum derivation.	SM-16, SM-21, SM-29

Paper 9 source boundary: HCMR-2 and ASCR-1; exact FGQT normalization; same-action score ledger.

Paper 10 source boundary: HCMR-2, ASCR-1 and GRCE-1.

7.6 Papers 11-12

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
11	NSTC-2 The Same-Action Neutral Mass Block, PMNS, Nonunitarity and Threshold Certificate	Downstream sector	Directly return Y_{ν}, M_R, M_L or exact $M_L=0$; execute the frozen NSTC Takagi, PMNS, nonunitarity, threshold and covariance contract.	All source, symmetry, residual-gauge, branch, scale and regulator gates pass before neutrino comparison.	A nonviable or absent neutral sector is a decisive failure; no fitting or inverse seesaw reconstruction is permitted.	SM-3, SM-6, SM-24, SM-25
12	RWCT-1 / GQSC-2 The Edge-Resolved Colour Typing, Triality Wall and Physical Confinement Theorem	Downstream strong sector	Determine whether winding acts on colour or generations; derive the wall coefficient, temporal-to-longitudinal bridge, string tension, E_{br} and mixing.	Colour typing passes, a positive physical gap is returned and the static-source / string-breaking certificate closes without inverse matching.	Both registered confinement candidates are retired; the present VERSF strong sector does not derive confinement.	SM-14, SM-27

Paper 11 source boundary: HCMR-2, OOC-1, ASCR-1, same-branch charged-lepton frame.

Paper 12 source boundary: Full-faithful edge action, FGQT lattice, GQSC candidates, ASCR scale.

7.7 Papers 13-14

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
13	CGMA-1 The Continuum Chiral Global Measure, Determinant Line, Bordism and Strong-Phase Theorem	Continuum global sector	Construct the chiral determinant-line section, eta-invariants, spin-bordism/global anomaly audit, reflection positivity and continuum Hilbert space; test retained $\theta\text{-bar}=0$.	The full chiral measure exists and either confirms zero strong phase or returns a precise obstruction.	The retained strong-phase theorem cannot be promoted; a global anomaly may falsify the completion.	SM-7, SM-10, SM-28, SM-29
14	NSPB-1 The Native-to-Continuum Scheme, RG, Threshold, Covariance and Pole Bridge	Downstream transport	Define the native VERSF scheme, convert to MSbar or an equivalent standard, run coupled RG, match thresholds and return pole observables with one covariance.	Round-trip and regulator tests close across every sector with no convention-specific re-fitting.	Dimensionless action outputs cannot be claimed as measured masses, couplings or widths.	SM-9, SM-21, SM-23, SM-26, SM-29

Paper 13 source boundary: FGQT, GQSC retained transfer, complete H_CMR and faithful fermion carrier.

Paper 14 source boundary: Physical gauge, Higgs, charged, neutral and strong boundaries.

7.8 Papers 15-16

#	Proposed paper	Position	Mandatory return	Pass condition	Failure meaning	Old gates
15	WHFB-1 The Whole-Action Multi-Regulator Physical Boundary and Exact-Degeneracy Certificate	Final integration	Run one common action on one admitted branch at all regulators; return all boundary arrays, scales, schemes and discrete equivalence classes.	One HFB boundary passes positivity, provenance, readout, branch, scale, covariance and convergence simultaneously.	No physical Standard Model certificate is possible; failure localises to a named sector rather than being averaged away.	All SM gates except SM-30
16	SM-30 / RPC-2 The Final Standard Model Derivation and Empirical Closure Audit	Final paper	For every Standard Model object: source theorem, grade, numerical value, scheme, covariance, empirical comparison and deviation; include the complete finite-test compendium.	No physical row is Owed, no conditional premise does hidden physical work, and all deviations are published.	The programme terminates with an exact statement of the remaining failure rather than another provisional percentage.	SM-30

Paper 15 source boundary: Papers 5-14.

Paper 16 source boundary: WHFB-1 sealed outputs only.

7.5 Dependency order and parallelism

Papers 1, 2, 3 and 8 can begin in parallel. Paper 4 consumes Papers 1-3. Paper 5 integrates Papers 1-4. Paper 6 consumes Paper 5 and should precede Papers 7 and 11. Papers 9 and 10 consume Papers 5 and 8. Paper 12 consumes Papers 5, 8 and the full-faithful colour action. Paper 13 consumes Paper 5 and the global topology. Paper 14 consumes the completed sector papers. Papers 15 and 16 are last by construction.

[1 || 2 || 3 || 8] -> 4 -> 5 -> {6, 9, 10, 12, 13}; 6 -> {7, 11}; all sectors -> 14 -> 15 -> 16

7.6 Minimum publication package for every paper

- **Source manifest.** Exact hashes, revision currency, carrier typing, branch, regulator and convention ledger.
- **Predeclared pass/fail contract.** Numerical tolerances, singular-value cutoffs, rank and covariance criteria fixed before target access.
- **Independent reconstruction.** A verifier that loads exported arrays without importing construction functions.
- **Negative-result discipline.** A fail or exact non-identifiability result is published without replacing the target or widening tolerances.
- **No-insertion seal.** Timestamped proof that measured masses, mixings, phases and confinement observables were inaccessible upstream.

- **Typed comparisons.** Only the same object, carrier and physical readout may supersede an earlier result.

8. Revised risk and falsification register

Risk	Failure mode	Severity	Deciding paper	Consequence
R1	Primitive action never selects a complete H_{CMR} .	Critical	Papers 1-5	The programme remains a family of compatible constitutive models.
R2	Event-level preparation costs can reproduce any target law.	Critical	Paper 1	No physical amplitude or phase is derived.
R3	Copy-maintenance dynamics is absent or unstable.	High	Paper 2	Persistent records lack a physical stability theorem.
R4	Blind source-jet recovery fails.	Critical	Paper 4	Conditional RRHF/RCMO/FCHI stack is not primitive.
R5	No orientation-odd coupling and branches are physically inequivalent.	Critical	Paper 6	No unique CP sign, neutral branch or flavour phase.
R6	Physical CKM remains the RRHF baseline.	Very high	Paper 7	Current charged-flavour action is empirically falsified by its own output.
R7	No source-native ruler or completion residue.	Critical	Paper 8	No absolute masses, Higgs scale or thresholds.
R8	Neutral direct blocks absent or nonviable.	Very high	Paper 11	No PMNS/neutrino derivation.
R9	Winding is generation-typed rather than colour-typed.	High	Paper 12	Registered confinement candidates are refuted.
R10	Global chiral determinant line or anomaly audit fails.	Critical	Paper 13	Retained strong-phase theorem cannot define a full quantum gauge theory.
R11	Scheme / pole round trip fails.	High	Paper 14	Numerical sector outputs cannot be compared as physical observables.
R12	Whole-action regulator or branch covariance fails.	Critical	Paper 15	No single physical Standard Model boundary exists.

9. Final programme verdict

SCIENTIFIC VERDICT

The VERSF corpus now supports a genuine conditional charged-flavour derivation, a strong exact global-topology theorem, a finite retained positive-transfer and strong-phase-zero theorem, a sophisticated field-dependent primitive-instrument construction, and complete execution contracts for several downstream sectors. It does not yet support a physical Standard Model certificate. The principal blocker is a physically incomplete H_{CMR} together with an unselected absolute scale; the neutral mass blocks, confinement coefficient, continuum chiral measure and scheme/pole bridge remain downstream open objects.

The programme should therefore make four claims, and only four claims, at top level.

- 1. A substantial mathematical and conditional action-level Standard Model construction exists.**
- 2. The charged-flavour tensor and one baseline CKM matrix are genuinely derived at conditional action level, but the returned matrix is empirically poor.**
- 3. Several physical mechanisms are now closed negatively or proved non-identifiable from the current action, including local phase selection, positive-measure branch selection and confinement strength.**
- 4. A complete first-principles Standard Model derivation is not established, because one complete physical H_{CMR} , one source-native scale and the downstream neutral, strong and continuum certificates have not been jointly returned.**

The correct next move is not another overview paper after this one. It is Paper 1, HCMR-P1, followed in parallel by HCMR-M1, PFDMI-S1 and ASCR-1. Those papers target the missing information directly. Their pass conditions are hard enough to advance the programme and their failure conditions are hard enough to end the relevant branch cleanly.

Appendix A - Old gate to new-paper crosswalk

Gate	Current object	New paper(s)
SM-1	Weak-orientation admissibility	1, 2, 3, 5, 6, 7, 8, 10, 12, 13, 15
SM-2	Full weak-doublet Hessian	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
SM-3	Leakage support trace	2, 5, 11, 15, 16
SM-4	Ordered chi readout	1, 2, 5, 15
SM-5	Gauge census closure	3, 4, 5, 15
SM-6	Weak octant sign	5, 6, 11, 15
SM-7	Adjoint removal, positivity, microcausality	2, 5, 13, 15
SM-8	Kappa / localisation convention	5, 8, 15
SM-9	Convention and normalisation audit	4, 5, 9, 14, 15
SM-10	Substrate anomaly descent	3, 5, 13, 15

Gate	Current object	New paper(s)
SM-11	Generation and species census	3, 5, 15
SM-12	World-to-framework occupancy	1, 2, 5, 15
SM-13	Hermitian lift / frame firewall	1, 5, 6, 7, 15

Gate	Current object	New paper(s)
SM-14	Strange confinement dynamics	12, 15
SM-15	Physical half-lazy gate	15
SM-16	Higgs potential and radial mode	5, 8, 10, 15
SM-17	Charm-hinge magnitude	15
SM-18	Coloured participation fraction	15
SM-19	Tau suppression projection	15
SM-20	Variational suppression identity	15

Gate	Current object	New paper(s)
SM-21	Charged-lepton absolute scale	8, 10, 14, 15
SM-22	Full Yukawa matrices	1, 4, 5, 7, 15
SM-23	Quark current-mass projection	8, 14, 15
SM-24	PMNS closure Hamiltonian	6, 11, 15
SM-25	Neutrino mass / charge conjugation	11, 15
SM-26	Gauge action and coupling values	1, 3, 4, 5, 8, 9, 14, 15
SM-27	QCD confinement and running	12, 15
SM-28	Strong CP and theta sector	6, 13, 15
SM-29	Quantum gauge completion	9, 10, 13, 14, 15
SM-30	Final derivation audit	2, 15, 16

Appendix B - Controlling numerical and exact certificates

Object	Certificate	Grade / limitation
D36 discrete Fold	$\alpha = 0.959001109719975$; entropy per Fold = $\ln 2$	Reproducible conditional clock; continuous 0.185 branch is a different convention.
K7 recurrent capacity	neutral rank 21; product rank 867	Capacity obstruction removed; identifiability not implied.
HCMR four-regulator parent	102 dimensions; 87-dimensional G_{red} ; second-order convergence	Complete candidate execution; physical certificate refused.
HCMR gauge candidate	$Z = (1, 5/2, 298)$	Conditional readout, not a physical coupling boundary.
Charged tensor	rank 9 at two regulators; bosonic/CAR agreement about 1.94×10^{-14}	Conditional action-level derivation.
Baseline CKM	χ^2_{5} about 290.7; $ J $ about 1.86×10^{-5}	Definite but empirically poor controlling return.
Quadratic axle	unique at lowest order; threefold democracy; norm share $1/\sqrt{3}$	Physical c_{ax} , readout and phase not returned.
Faithful group	$[SU(3) \times SU(2) \times U(1)_q] / Z_6$ isomorphic to $S(U(3) \times U(2))$	Exact on frozen ledger.
Spin-T4 fractional group	Z_{36} ; non-rectangular theta-period lattice	Exact on frozen ledger.
Retained strong phase	$\theta_{bar} = 0$ in every ordinary positive full-support completion	Retained theorem; full chiral continuum measure open.
Neutral sector	30 physical real parameters unfixed	Physical certificate refused.

Object	Certificate	Grade / limitation
Absolute scale	one-anchor values near 84 micrometres; primitive physical nullity one	Metrological calibration / conditional branch, not source-native derivation.

Appendix C - References

- [1] Taylor, K. VERSF Standard Model Derivation Master Ledger - Strengthened Roadmap Edition, July 2026.
- [2] Taylor, K. SMC-1U: A Conditional Standard Model Derivation and Closure Audit in VERSF, current consolidated revision.
- [3] Taylor, K. D36-R1: The D36 Clock-Convention, Reproducibility and Manifest-Currency Theorem in VERSF.
- [4] Taylor, K. K7-CBR-1: The $K = 7$ Closure-Born-TPB Renewal Construction in VERSF.
- [5] Taylor, K. ASAC-1: The Absolute-Scale, Action-Normalisation and Closure-Clock Conditional Theorem in VERSF.
- [6] Taylor, K. HCMR-MR1: The Four-Regulator Commitment-Maintenance Execution and Physical-Admission No-Go Theorem in VERSF.
- [7] Taylor, K. NSTC-1: The Same-Branch Neutral-Sector Return and Exact Current-Corpus Physical-Certificate Boundary.
- [8] Taylor, K. FGQT-1: Faithful Gauge Quotient, Bundle Census and Topological-Charge Lattice.
- [9] Taylor, K. PFHBA-7: The Primitive Full-Carrier Provenance, Recurrent Fisher Pullback, Source-Projected Bath Factorisation and Conditional Doob-Kraus Descent Theorem in VERSF.
- [10] Taylor, K. HM4-EX1: The Multi-Regulator Full-Faithful Source Assembly, Exact Six-Mode Bath Identification and HM4 Provenance Execution-Boundary Theorem in VERSF.
- [11] Taylor, K. PFDMI-1: The Primitive Field-Dependent Marked Instrument Programme in VERSF, complete EX2I/EX2J revision.
- [12] Taylor, K. GQSC-1R: The Faithful-Quotient Retained Global Measure and Strong-Phase Confinement Theorem in VERSF.
- [13] Taylor, K. CKP-2.4 / RRHF-FD1: The Conditional Derivation of Charged Flavour and the Unique Lowest-Order Quadratic CP Axle in VERSF.

End of audit