

The Nouns Had to Become Verbs

April 2026:

Rejection, Time-Zero Construction,
and the Search for Persistent Coercivity

*The map had to touch time zero;
persistence still had to be earned*

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Research posture and claim boundary

This note reconstructs April 2026 as a separate successor to frozen Research Notes Nos. 08–11; no predecessor is revised. Three editorial decisions materially changed the human and technical course of the work, but rejection is neither mathematical disproof nor mathematical credential. By late April the program had specified a finite spatial gauge carrier, Gauss constraints, fixed-thickness Wilson observables, an electric/magnetic form package, and the algebra of finite coercive assembly. The protected physical projection, source-verifiable low-rank witnesses, refinement-uniform coercivity, controlled passage, spacetime reconstruction, and invariant mass remained unpaid. Later Wilson-tube mathematics is not imported backward.

Abstract

April 2026 began with three editorial decisions that injured without deciding the mathematics. The resulting retrospective did not halt the work; hurt, anger, doubt, family responsibility, and technical triage overlapped. The mathematical response was a correction of proof order. Preglued localization had to precede quotient, completion, and vacuum realization, while admissibility and refinement rigidity had to control a carrier rather than substitute for one.

By late April that correction had reached finite time zero. The record specifies group-valued edge configurations, an L^2 carrier, Gauss reduction, fixed-thickness Wilson observables, localization, and an electric/magnetic form package. Auxiliary phased-graph and mixed-block calculations exposed how a finite coercive estimate might be assembled and why kernel recognition was load-bearing. They did not establish a compatible protected projection or a uniform lower bound under refinement. Incision, surgery, Čech realization, Mosco–Riesz passage, spacetime reconstruction, and invariant mass remained downstream. April’s achievement was therefore a turn from conditional architecture toward acting finite-scale construction, not completion of the later five-paper proof.

Evidence and mathematical-status labels

RECORDED is supported by a surviving April paper, file, conversation, screenshot, email, or administrative artifact. REMEMBERED marks later first-person testimony. RECONSTRUCTED identifies an order rebuilt from several sources. MODERN READING uses later mathematics only to clarify what April was trying to build. OPEN marks an unrecovered source, date, formula, calculation, or implication. These evidence labels remain separate from finite calculation, formal theorem, conditional theorem, proposed construction, analytic assumption, carrier-identification assumption, uniformity requirement, reconstruction requirement, and physical interpretation.

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Source protocol

This note uses five historical labels: RECORDED, REMEMBERED, RECONSTRUCTED, MODERN READING, and OPEN. Historical evidence and mathematical status are independent. A statement can be Recorded as something I wrote and remain only a proposed construction, conditional theorem, or incorrect claim. A later paper may clarify an April question, but it may not silently convert an April plan, finite witness, assumption, or physical interpretation into a completed result.

The governing controls are permanent: editorial rejection is neither mathematical disproof nor mathematical credential; finite positivity is not persistent coercivity; a finite time-zero lattice-gauge carrier is not a completed physical Yang–Mills theory; and April’s construction program is not the mature later Wilson-tube proof.

Part I — The Month Did Not Begin with the Email

1 Orientation: the nouns had to become verbs

MODERN READING. By the end of March I possessed much of the vocabulary of the proof. I had projection geometry, admissibility, refinement, rigidity, vacuum lineage, strict and twisted descent, graph Poincaré control, and Mosco–Riesz nonleakage. I could draw a serious map of the country.

What I still lacked was an uninterrupted construction on an identifiable physical carrier. The debts can be written compactly:

carrier $\longrightarrow$ cost $\longrightarrow$ recognition $\longrightarrow$ uniformity $\longrightarrow$ passage $\longrightarrow$ spectral meaning.

April left most of those debts unpaid, but changed the order in which I understood them. The nouns had to begin doing something. A carrier had to carry. A form had to penalize. A projection had to recognize. Refinement had to preserve. A limit theorem had to transport something already constructed.

That is the sense in which the nouns became verbs. It is not a claim that every verb was completed by April 30.

2 The frozen March boundary

Recorded from the frozen predecessor. March ended with the three-paper package already submitted on February 28 and with its compressed architecture more explicit than it had been at submission. The Grassmannian/Fredholm insight, projection drift, analytic and categorical vacuum lineages, strict and centrally twisted descent, and the fixed-carrier/changing-carrier firewall were real achievements.

March had also made several distinctions that April could not be permitted to blur:

tensor unit $\neq$ vacuum line $\neq$ Gauss-invariant sector in general.

Graph Poincaré and refinement rigidity were certification mechanisms. Mosco–Riesz was a conditional nonleakage mechanism after isolation and carrier compatibility. None of them constructed the physical object merely by being available.

I did not end March believing that the landscape was empty. I believed I had marked something serious. That confidence belongs to March and must not be rewritten by what arrived in April. The narrower question was harder and better: what had the submitted and revised papers actually earned?

3 April 1 before the decision

RECORDED. April did not begin with an email. Earlier on April 1 I was already discussing squeeze surgery, entropy or renormalization-curvature budgets, and monotonic refinement passage. [J12-S-B01; J12-S-C58]

That matters because rejection was not the birthplace of every constructive verb in the month. Surgery language and local reconstruction pressure were already present. They were still proposals. The available conditional packaging said, in effect, that if comparison defects decayed and if the surgery budget behaved monotonically, then one might obtain Cauchy control and path independence. The premises remained to be proved.

The month therefore began with motion, but not with completion.

4 April 1

RECORDED. The surviving April 1 screenshot concerns manuscript CIMP-D-26-00416, *Refinement and Rigidity in Lax Monoidal 2-Systems, with Applications to Algebraic Quantum Field Theory*. It identifies Yasuyuki Kawahigashi as associate editor and contains the sentence:

“I regret to inform you that based on the editorial board’s assessment and informal consultations with experts, this article does not contain sufficiently original ideas and results pertaining to the main interests of CMP to be accepted for publication.”

The screenshot preserves the date, manuscript number, title, and displayed wording. It does not preserve a complete machine-readable header, exact sending time, or time zone. [J12-S-E01]

At 22:47 UTC in the recovered conversation I wrote, “Paper I was just desk rejected.” I compressed the decision as “Not original enough.” That was my immediate reading, not a replacement for the email’s exact words. [J12-S-C01]

5 What the first email did and did not establish

The email established an editorial event. It established that the journal would not publish that manuscript through that submission. It established what the associate editor communicated about originality, results, and the main interests of the journal. It invoked editorial-board assessment and informal consultation with experts.

It supplied no mathematical counterexample, no theorem-by-theorem analysis, and no basis for concluding that the Grassmannian insight or the refinement questions lacked originality. No referee report, reviewer identity, or line-by-line mathematical criticism has been recovered.

The reverse firewall is equally important. Later mathematical success would not prove that the editorial process was improper.

editorial rejection $\nRightarrow$ mathematical invalidity,
later success $\nRightarrow$ editorial misconduct.

The email is evidence of what was communicated and of the human conditions that followed. The manuscripts and proof-bearing files remain the evidence for the mathematics.

Part II — Three Decisions and the Week They Opened

6 The immediate technical response

RECORDED. My first technical response was not a triumphant repair. It was the recognition of a circularity. The localization interface had to be proved on preglued local sections before quotient, completion, or vacuum GNS realization. [J12-S-C01; J12-S-C02; J12-S-C67]

The order had to be

preglued sections $\longrightarrow$ localization $\longrightarrow$ descent
 $\longrightarrow$ quotient/completion $\longrightarrow$ compatible vacuum realization.

That correction began on the night of the rejection. The interface was still unproved, but its burden was finally in the right place.

7 Words that landed harder than an ordinary rejection

REMEMBERED. To say the decisions did not hurt would be an understatement. The first one struck the portion of the work I believed was most intellectually new. I knew the architecture still carried conditional burdens; I did not believe it was empty or merely derivative.

The wording therefore landed as more than a routine mismatch between a paper and a journal. I experienced it as a judgment on whether I could distinguish a real mathematical landscape from a private construction that mattered only to me. That is testimony about injury. It is not evidence that the decision was mathematically wrong. [J12-S-T01]

8 The impulse to answer

REMEMBERED. I wanted to answer sharply. I researched the associate editor's scholarship and thought about what I might say. Then I decided that such a response was beneath me and would not settle anything worth settling. [J12-S-T01]

OPEN. No unsent reply, browser history, or contemporaneous search record has yet been recovered. I cannot reconstruct the exact order of searches or invent the sentences I did not send.

The restraint matters historically because the critical energy turned inward. I refused to treat the editorial language as a theorem, but I also refused to let anger exempt the manuscripts from audit.

9 April 8

RECORDED. Two additional decisions are preserved on April 8.

The first concerns CIMP-D-26-00417, *Geometric Exhaustion, Strict-Sector Collapse, and Sectorial Survival in Algebraic Yang–Mills Theory*. [\[J12-S-E02\]](#)

The second concerns CIMP-D-26-00418, *Vacuum Characterization and Structural Existence of Physical Yang–Mills in (3+1) Dimensions within the Admissible Haag–Kastler Realization Class*. [\[J12-S-E03\]](#)

The displayed decision paragraph is substantially identical in both:

“I regret to inform you that this topic is not of direct interest to CMP’s intended audience. Mathematical physics is a vast field, and while we have tried to extend our coverage as much as possible, our scope is limited by the editorial board member’s particular domains of interest. CMP has a substantial backlog of accepted papers. We are therefore forced to impose very strict standards. In particular, we need to select papers that are more in line with the core areas that are considered to be within the traditional scope of CMP. In an effort to reduce the backlog, we unfortunately cannot accept all of the good works that are submitted.”

Each then states that the article cannot be accepted for publication.

The April 8 language emphasized audience, scope, editorial domains, backlog, and selectivity. It must not be merged with the April 1 originality wording. Exact arrival times, opening order, time zones, and complete status histories remain open.

10 Three papers, three decisions, and no external mathematical verdict

By April 8 all three papers in the February 28 package had received editorial decisions. That changed the publication history and the human scale of the month.

It produced no recovered referee reports. One email mentioned informal expert consultation; the other two visible emails did not. No external report or detailed mathematical objection has been recovered.

The documentary sentence is simple: three editorial decisions arrived in April. One invoked editorial-board assessment and informal consultations with experts. Two used scope, audience, backlog, and selectivity language.

Neither “three referees rejected the proof” nor “no expert looked at the work” is supported.

11 The depressive retrospective

REMEMBERED. I have described myself as depressed for a week. I reconsidered January, February, and March. I asked whether I had trusted compression too much, whether I had allowed architecture to certify objects that had not been built, and whether I had moved too quickly from conditional existence to physical language. [J12-S-T01]

The dated record does not support a clean seven-day cessation of work. Local files and technical conversations continued on April 2, April 4–7, and April 10–14. Depression and work coexisted.

Pain was not a research method, and I will not romanticize it as one. Its mathematical consequence was that the retrospective eventually attached itself to definite unpaid tasks.

12 Considering quitting

REMEMBERED. I considered quitting the research program. [J12-S-T01]

The record supports no invented dramatic scene and no broader crisis than I have stated. It supports the serious possibility that I might stop doing this work.

I had been trying to mark a landscape, in something of the spirit in which Hamilton and Thurston had once marked landscapes before every road was built. I knew my work was incomplete. I also knew that I had been away from academic journal language for a long time. Much of my professional writing had been shaped by DOE and ORNL review cultures. I had no living mentor guiding the rhetoric of these submissions. The older mathematical style I remembered allowed more bravado than contemporary editorial language often rewards.

MODERN READING. That context explains the language mismatch. It does not excuse an overstated theorem.

13 My boys, my wife, my family, and what failure seemed to mean

REMEMBERED. Failure did not feel private. I measured it against Isaac and Sawyer, my sons, who looked up to me; against Megan, my wife and partner, who needed my support; against my family and classmates; and against the hillbilly people from whom I came. [J12-S-T01]

Those were burdens I placed on the moment, not judgments they pronounced. No April conversation with Megan, Isaac, or Sawyer has been recovered for this interval, so their dialogue cannot be supplied now.

Their importance also cannot migrate into the proof. My sons' regard could not establish a spectral gap. Megan's partnership could not discharge a carrier-identification assumption. Hillbilly endurance could not prove refinement-uniform coercivity. But those things explain why an editorial sentence could strike with the force it did.

14 Friends who understood rejection

Recorded wording; chronology open. A surviving screenshot preserves part of an exchange with Ian Vega. My visible message says that I was “not totally disconnected from research” and was “Just trying to find the right way to move this work forward.” Ian replied:

“Just keep on going, Scott. I'm sure you'll get through eventually. I still fight with rejections of my own even to this day.”

The screenshot does not show a calendar date or the beginning of the exchange. [J12-S-M01]

Ian offered companionship, not mathematical certification. Two additional remembered fragments about peer review and journals remain unattributed and undated. Until their sources are recovered, they cannot be merged into a composite chorus.

15 Mamaw's equality and perseverance

REMEMBERED. Mamaw's voice returned as an internal measure:

“Scottie nobody is better than you and you aren't better than anybody.”

The exact punctuation and status of the wording—as a literal remembered statement or a family maxim internalized over years—remain open. [J12-S-T02]

It was not a claim of superiority. It cut both ways. An editor's position could not make me less capable of seeing something true, and my conviction could not make me better than the people whose criticism or refusal I disliked. The work still had to stand.

This statement remains distinct from the March-associated memory, "Scottie is my boy. That is my grandboy."

16 Hillbilly stubbornness became planning

RECONSTRUCTED. The recovery was not one luminous moment. Hurt, anger, ordinary work, family responsibility, technical triage, and stubbornness overlapped. Gradually the retrospective acquired a research program.

hurt $\longrightarrow$ retrospective audit
 $\longrightarrow$ recognition of missing construction $\longrightarrow$ time-zero plan.

The decisions supplied no finite carrier and no repair theorem. What they changed was the pressure: I could no longer treat a map as if it were the terrain.

There was no miracle turn. There was the ordinary rhythm of research under less ordinary emotional pressure: try the idea, find the obstruction, correct the order, and return to the object.

Part III — Turning the Critical Eye Around

17 What I should have done in January

Remembered/Modern reading. I came to believe that I should have started sooner with an acting finite-scale object: specify a spatial carrier, impose Gauss law, write Wilson observables, attach a positive cost, and calculate examples before asking refinement and descent to carry the structure into a limit. The research pattern was ordinary once I admitted it: try an idea, ask why it should work, find the obstruction, repair the interface, and only then generalize.

That judgment must not be exaggerated. January's abstract work had exposed real obstructions and interfaces. The correction was not to discard abstraction. It was to force abstraction to report to a construction.

18 The beauty and danger of abstraction

The March architecture was beautiful because it compressed many genuine relationships. It was dangerous because the compression made missing arrows look shorter than they were.

Admissibility could define which refinements were allowed. Rigidity could constrain compatible transport. Grassmannian geometry could monitor projections. Mosco and Riesz could control passage after their hypotheses were met. None of those statements supplied the finite Yang–Mills carrier on which the relevant form acted.

a correct certification shell $\neq$ construction of the object being certified.

19 Admissibility plus refinement was a control law, not a carrier

MODERN READING. April demoted the March slogan

admissibility + refinement $\longrightarrow$ rigidity

from an apparent source of physical coercivity to a control law acting on something already built.

The corrected architecture became

$\begin{aligned} &\text{finite carrier} \rightarrow \text{explicit cost} \rightarrow \text{kernel recognition} \\ &\rightarrow \text{admissible refinement control} \rightarrow \text{uniform coercivity.} \end{aligned}$

The final arrow remained open. Even so, the correction was decisive: refinement was no longer being asked to create its own object.

Part IV — The Map Had to Touch Time Zero

20 What “finite scale” meant

RECORDED. By April 24 the program had become explicitly spatial and Hamiltonian. A bounded region $\Omega \subset \mathbb{R}^3$ was considered at a finite discretization scale n , with mesh or cell size $h_n \rightarrow 0$ and positive Wilson-tube thickness $\varepsilon > 0$ held fixed. [J12-S-C35; J12-S-C36]

This was not a thin-loop continuum theory. It was a finite time-zero setting designed to make the carrier and form visible before spacetime reconstruction.

21 What “physical” still required

The late-April construction earned more than a generic graph. It specified group-valued edge configurations, gauge constraints, gauge-invariant observables, and an intended Hamiltonian form.

That permitted the cautious phrase **finite-scale physical Yang–Mills carrier** only in a narrow sense: the gauge group, constraints, and Yang–Mills observable interpretation were specified.

It still fell far short of a completed physical theory. Exact boundary conventions, a common form core, a self-adjoint Hamiltonian, vacuum recognition, a local net, spacetime translations, and invariant mass remained open.

22 The two carrier lineages

RECORDED. Early April worked with preglued local sections and an operator-algebraic realization. On April 4 a local algebra in a state was schematically placed on

$$\mathcal{M}_{\mathcal{O}} = \mathcal{A}_{\pi}(\mathcal{O})'', \quad \mathcal{H}_{\mathcal{O}}^{\text{GNS}} = L^2(\mathcal{M}_{\mathcal{O}}, \varphi_{\mathcal{O}}),$$

with a proposed completely Dirichlet form. [J12-S-L01]

Late April introduced a finite lattice-gauge lineage. The two were not automatically the same:

$$L^2(\mathcal{C}_n)^{\text{Gauss}} \not\equiv L^2(\mathcal{A}_{\pi}(\mathcal{O})'', \varphi_{\mathcal{O}})$$

without a comparison theorem. No completed April theorem joining them has been recovered.

23 The finite configuration carrier

RECORDED. For a finite positively oriented edge set E_n^+ , the configuration space was

$$\mathcal{C}_n = G^{E_n^+},$$

and the kinematical carrier was

$$\mathcal{H}_n = L^2(\mathcal{C}_n).$$

[J12-S-C35]

This was an exact finite definition rather than a complete theorem. The proof-bearing manuscript still needed the precise measure, edge-orientation conventions, boundary treatment, and common form core.

24 Gauss law made the carrier more than atmospheric

RECORDED. Gauge generators and gauge averaging supplied the intended Gauss reduction. The physical finite carrier was specified schematically as the joint kernel of the Gauss generators or the range of the averaging projection.

This was a real constraint. It made “physical” more than an adjective. It did not, however, make the Gauss carrier one-dimensional:

$$\text{Ran } \Pi_{\text{Gauss},n} \neq \mathbb{C}\Omega_n \quad \text{in general.}$$

Gauge invariance removes gauge redundancy. It does not remove every gauge-invariant excitation.

25 Wilson loops, tubes, and characters

RECORDED. By April 18 the Wilson datum had become explicit. For compact semisimple G , a finite-dimensional unitary representation ρ , and a loop γ , the familiar observable was

$$W_{\gamma,\rho}(A) = \text{Tr}_\rho \text{Hol}_\gamma(A).$$

Positive tube thickness ε remained part of the theorem domain. [\[J12-S-C09\]](#)

By April 24–29 the local observable system was generated by Wilson-tube data, recorded schematically as

$$\mathcal{A}_n^\varepsilon(\Omega) = L^\infty(\Sigma_n^\varepsilon(\Omega)).$$

[\[J12-S-C39\]](#)

Wilson loops, tubes, and characters were generators, not a declared linear basis. Thick-to-thin reconstruction belonged later.

26 Localization through collars

Recorded/Proposed. Conditional expectation was selected as the localization mechanism for Wilson-generated data. Collar-visible extractors, bounded overlap, comparison constants, and profile prolongation were intended to control how local data entered the finite carrier.

This gave localization a typed role. The norm bounds, collar comparisons, edge domination, and refinement compatibility were still proof obligations. A collar on a spatial carrier was not a spacetime time-slice theorem.

27 The first explicit Hamiltonian-form package

RECORDED. The finite form was split into electric and magnetic contributions:

$$Q_n^\varepsilon = g_{n,\text{el}}Q_{n,\text{el}} + g_{n,\text{mag}}Q_{n,\text{mag}}.$$

[\[J12-S-C35\]](#)

That formula was an important construction verb. A cost had a carrier and a physical division of labor. The exact summands, domains, normalizations, closedness, and associated self-adjoint operator were not all recovered in an April proof file.

28 The local pre-continuum paper

RECORDED. The April 5 skeleton and April 10 drafting prompt organized a local paper around Wilson sections, bounded refinement covers, collars, Gauss compatibility,

the preglued form, glued Hilbert realization, unit transport, localization, and local coercivity. Much of the April 5 body remained marked **TODO**. [\[J12-S-L02; J12-S-L03\]](#)

By April 7–10 the scope was explicitly local, pre-vacuum, and pre-continuum. Surgery and exhaustion were moved to a sequel. [\[J12-S-C03; J12-S-C04; J12-S-C21\]](#)

OPEN. The surviving sources do not justify saying that an April 10–11 manuscript had completed every theorem and appendix. They justify saying that the local theorem program and its proof obligations had become sharply organized.

Part V — A Cost Had to Be Created

29 The Wilson datum had to be centered

RECORDED. The April 18 direction required the unit component to be removed from the Wilson-section data before the later global realization.

Schematically,

$$W \mapsto W - \text{unit component.}$$

Centering prevented the trivial representation from contaminating a proposed excitation cost. The harder recognition step remained:

$\text{unit-centered} \neq \text{vacuum-orthogonal.}$

30 The Casimir became a direction for cost

RECORDED. Compact-group representation theory supplied the possibility of penalizing nontrivial labels by a quadratic Casimir. This was the natural electric direction: the trivial label has zero Casimir, while nontrivial irreducible labels have positive Casimir eigenvalue under a chosen normalization.

The April sources contain no complete edge-Casimir form with its exact domain and normalization. More importantly,

$$\begin{array}{l} \text{Casimir positivity on nontrivial labels} \\ \not\Rightarrow \text{control of every gauge-invariant excitation.} \end{array}$$

Gauge Casimir was not $P_\mu P^\mu$, and it was not invariant mass.

31 The first graph shortcut failed

RECORDED. A signed-cycle or flux toy was considered and then rejected because it modeled the wrong null geometry. [J12-S-C49 AND SURROUNDING EXCHANGE]

This failure was useful. A positive quadratic expression is not the right coercive witness if its kernel does not match the protected structure. April began to distinguish the size of a constant from the identity of the space on which it was positive.

32 The corrected phased graph

Recorded conversation; substantially assistant-formalized. The replacement was a weighted phased graph. For vertex data f_v , edge weights $w_e > 0$, and phases ω_e , the auxiliary energy took the form

$$Q_n^{\text{graph}}(f) = \sum_{e=(v,w)} w_e |f_w - \omega_e f_v|^2.$$

Its graph-flat space consisted of phase-compatible configurations. The associated finite graph Laplacian could be diagonalized, and after removing its exact finite kernel the first positive eigenvalue supplied a finite Poincaré constant.

This was an acting finite cost. It was still an auxiliary graph theorem.

33 Graph variation and the soft sector

The phased graph was intended to control soft collective variation that a purely local Casimir penalty might miss. In a twisted branch, persistent frustration could in principle keep the soft constant positive. In a strict branch the central frustration vanished and could not be invoked as an energy source.

Nontrivial cohomology supplied a label or obstruction, not a numerical lower bound by itself.

$$\boxed{[\omega] \neq 0 \not\Rightarrow \inf_n \lambda_1(\Delta_{n,\omega}) > 0.}$$

Quantitative persistence required geometry, weights, holonomy separation, and carrier comparison.

34 The graph-to-carrier bridge

Proposed. To turn graph positivity into physical coercivity, April needed a synthesis map from graph/profile data into the Gauss-compatible Wilson carrier, unit compatibility, quotient comparison, and domination of the graph channel by the physical form.

A schematic bridge was organized through a map F_n , a graph-flat projection $\mathbf{p}_n$, and uniform frame bounds. The notation and much of the formal packaging were assistant-rendered. The authorial requirement was that the toy model respect the correct null direction and return to the physical carrier.

No April source proves the complete bridge.

35 UV localization and patching

Proposed. Local Wilson/Casimir control supplied the ultraviolet block. Collars and bounded overlap were meant to patch the local estimates. The intended bookkeeping was

$$c_{\text{UV}} = c_{\text{loc}} C_{\text{patch}} - C_{\text{def}} > 0.$$

This formula describes the competition correctly: local positivity survives only if patching retains more than localization defects consume. The April record does not derive all three constants from the finite Yang–Mills carrier.

36 The exact mixed calculation

Finite/operator-theoretic calculation. Once positive UV and IR constants and a mixed-loss bound were supplied, the remaining algebra reduced to a 2×2 positivity problem. With a stated cross-term convention, the smallest eigenvalue of the comparison matrix gave an exact conditional constant.

This was real algebra, but algebra could not manufacture its premises. Bounded 2-lax Wilson descent alone gave no automatic mixed-form estimate.

37 Kernel recognition

The decisive unresolved question was not merely whether a positive number appeared. It was what the kernel meant.

April contained several candidates:

$$\text{unit direction}, \quad \mathbb{C}\Omega_n, \quad \text{Ran } \Pi_{\text{Gauss},n}, \quad \ker Q_n^\varepsilon, \quad \text{Ran } \mathbf{p}_n.$$

No April theorem proved that these coincided in the way a physical spectral-gap statement required. The complement had to be named before it could be coerced.

38 A finite lower bound

April had enough algebra to state a conditional one-scale inequality of the form

$$Q_n(u) \geq \kappa_n \|(1 - P_n)u\|^2.$$

The historical audit recovered no uninterrupted proof on the physical finite carrier with exact form, domain, protected projection, UV estimate, IR bridge, and mixed loss all verified together.

What April earned was the algebra of finite coercive assembly and a clear view of the recognition problem. An unconditional physical finite-scale gap theorem remained beyond the recovered record.

Part VI — Persistence Was the Real Theorem

39 Four statements that could no longer be merged

April had to separate:

$$Q_n(u) \geq \kappa_n \|(1 - P_n)u\|^2,$$

$$\inf_n \kappa_n > 0,$$

$$T_{m \leftarrow n} P_n \simeq P_m T_{m \leftarrow n},$$

and

$$Q_n \xrightarrow{\text{Mosco}} Q_\infty.$$

These are different claims. One-scale positivity is not uniformity. Uniform numbers without compatible projections do not control the same physical complement. Projection transport does not prove form convergence. Mosco convergence does not create a gap.

40 Why persistence was the real theorem

The target was not a positive constant on one hand-picked graph. It was a lower bound that survived admissible refinement on compatible carriers and complements:

$$\boxed{Q_n(u) \geq \kappa \|(1 - P_n)u\|^2, \quad \kappa > 0 \text{ independent of } n.}$$

This is what “persistent coercivity” means in this note. I had named and organized the target; uniform survival remained unproved.

41 Refinement could preserve or destroy the constant

Exact transport existed on an enlarged algebraic carrier. Wilson-side transport was allowed a bounded 2-lax defect. These were meaningful descent mechanisms.

By themselves they controlled neither the quadratic form nor its mixed terms or protected projection. A refining graph could develop soft modes. Localization constants could deteriorate. Comparison frames could lose uniform bounds. The kernel could drift.

The refinement theorem therefore needed quantitative hypotheses, not only coherence diagrams.

42 The protected projection had to travel

March had already made projection drift visible. April gave that warning a physical target. If P_n represented the protected vacuum or exact ground space, the transport maps had to preserve it sufficiently well for the same complement to survive.

Approximate intertwining without a uniform spectral window could allow leakage. Exact categorical unit transport was not automatically physical vacuum transport.

43 Mosco and Riesz only after isolation

Mosco convergence could transport closed forms and support strong-resolvent passage after carriers and forms were identified. Riesz projections could preserve an isolated spectral island after a uniform contour existed.

The correct order was therefore

$\begin{aligned} &\text{carrier} \rightarrow \text{form} \rightarrow \text{kernel} \\ &\rightarrow \text{uniform isolation} \rightarrow \text{Mosco/resolvent} \rightarrow \text{Riesz nonleakage.} \end{aligned}$
--

The final arrows could not yet activate because the earlier uniformity theorem remained open.

Part VII — The Witnesses Were Still Ahead

44 The $SU(2)$ witness

OPEN. No April-native $SU(2)$ graph or complex, representation packet, Casimir normalization, strict or $\mathbb{Z}_2$ -twisted matrix, characteristic polynomial, spectrum, kernel computation, code, notebook, or screenshot has been recovered.

Later tuples $\{0, 3, 3\}$ and $\{1, 1, 4\}$ cannot be moved backward into April. Without the operator and provenance, an eigenvalue tuple is not a historical witness.

45 The $SU(3)$ witness

OPEN. No April-native $SU(3)$ triangle, triality packet, $\mathbb{Z}_3$ -flux representative, matrix, spectrum, ground value, Casimir normalization, or coercive constant has been recovered.

The mature $SU(3)$ packet dated July 24 belongs to July. It may clarify later what the April program was seeking. It cannot be cited as an April calculation.

46 What the witnesses could have proved

A correct finite witness could verify positivity for a specified matrix, identify a finite kernel, distinguish strict and twisted branches, or test a proposed cost architecture. It could expose a normalization error or a false kernel claim.

It could not by itself prove a general compact-semisimple theorem, a uniform refinement floor, a continuum passage, or invariant mass.

47 The remembered three sectors

Reconstructed/Open. The April vocabulary included strict, twisted, and admissibility/refinement branches or modules. The taxonomy shifted as I worked. It had not become the mature physical three-sector theorem.

The strict/twisted distinction concerned central descent data. Admissibility/refinement described a control layer. These were not three mutually exclusive physical particle sectors, and they could not be made so by retrospective renaming.

Part VIII — Surgery Needed an Object

48 Incision as a question

RECORDED. By April 27 the intuition was stated that “the twist lives in the incision.” The first topological formulation placed a central class on contractible Minkowski space and had to be corrected. The proposed domain became

$$M_{\text{inc}} = \mathbb{R}^{3,1} \setminus \Sigma, \quad [z] \in H^2(M_{\text{inc}}, Z(G)).$$

[J12-S-C66]

The intuition was authorial; the corrected cohomological packaging was assistant-rendered. The set Σ remained unselected among several possible meanings. No incision operation had yet been typed.

49 Surgery as a proposed verb

Squeeze-surgery language predated the rejection. By April 10 surgery and exhaustion had been removed from the local paper. On April 11 “collar squeeze surgery” was named. By April 14 a larger architecture proposed using surgery to reduce transport defects and reach canonical local C^* - and W^* -net structures. [J12-S-C04; J12-S-C61; J12-S-C68]

The architecture contained TODOs. Naming the verb was progress; typing and proving the operation was the debt.

50 What surgery had to preserve

For surgery to carry analytic weight, it had to specify:

- the object being cut or replaced;
- the admissibility conditions on the operation;
- its effect on Wilson data and Gauss constraints;
- transport of the protected projection;
- comparison of pre- and post-surgery forms; and
- a quantitative bound on spectral loss.

No April source proves all of these.

51 Bordism as a controlled-limit plan

Remembered/Open. Bordism had entered my planning vocabulary by April, although I cannot presently determine whether its first appearance was in a personal journal, a manuscript, or a conversation. [\[J12-S-T03\]](#)

Recorded April sources establish the neighboring architecture of exhaustion, defect propagation, branch selection, incised spacetime, and controlled continuum passage. No April-native typed bordism or scaled-bordism comparison object has been recovered.

Exhaustion was not bordism. A diagram connecting scales was not a composition theorem. The mature later bordism construction remains quarantined.

52 Čech nerves and local-to-global passage

Proposed. A Čech realization route was suggested for carrying admissible central cocycle data toward a gerbe-like spacetime object. This correctly identified a local-to-global problem.

No proof yet carried the quadratic form, vacuum projection, lower bound, or state through that route. A topological cocycle is not an analytic passage theorem.

53 The five Roadmarks were not the road

RECORDED. On April 26 five joint refinement–exhaustion Roadmarks were stated as sufficient conditions. They were explicitly unproved and unused. [\[J12-S-C64\]](#)

Their value was diagnostic. They showed which uniformity and compatibility statements a later theorem would need. They cannot be cited as if the road had already been traveled.

Part IX — The Corrected Architecture

54 The Bearing-Stone interval

Reconstructed/Open. Around April 24 a private “Bearing-Stone Note” on finite-scale coercivity was planned or discussed, with Wheeler and Klauder as conceptual guides. The exact private file has not yet been recovered.

The framing is historically plausible and recorded in the planning conversations: Wheeler represented the demand that the mathematics touch physical questions; Klauder represented proof discipline and the refusal to hide the carrier. But neither name supplies an April theorem. Until the file is recovered, this interval must remain a planning episode rather than a document quotation.

55 Wheeler’s demand and Klauder’s discipline

MODERN READING. The April correction can be summarized by two demands. The first was physical: what is the finite object, what is observed, and what costs excitation? The second was mathematical: on which Hilbert space, with what domain, kernel, projection, and uniform constant?

The combination explains why a finite graph calculation was useful but insufficient. It had to return to the Gauss-compatible Wilson carrier and then survive refinement.

56 The proof dependency was reordered

By the end of April the honest dependency graph was

preglued local sections → finite Wilson/time-zero carrier

→ Gauss reduction and localization → explicit cost → kernel recognition

→ one-scale coercivity → transport and descent → admissible refinement

→ persistent coercivity → exhaustion, surgery, and branch selection

→ time-zero limit envelope → spacetime and state reconstruction

→ Mosco–Riesz passage → time-translation generator → invariant mass.

April corrected the order. The chain itself still stretched far beyond the month.

Part X — What April Earned

57 What April exactly calculated, proved, and proposed

RECORDED. On April 29 I said that everything needed for Paper I had been derived and proved. That sentence belongs to the month because it records my confidence at the time. [J12-S-C15/C33/C34]

Open/Audit finding. The surviving April files do not contain a complete proof-bearing chain for the physical protected projection, the graph-to-carrier bridge, and a refinement-uniform constant. My April 29 confidence and the present source audit must both remain visible; neither is allowed to erase the other.

Exact finite definitions and calculations: the finite configuration carrier; its L^2 space; Gauss averaging as the intended constraint mechanism; fixed-thickness Wilson data; the electric/magnetic form split; a phased graph form and its finite Laplacian; kernel-removed finite graph positivity; and the conditional 2×2 mixed-block algebra.

Formal or conditional results: finite coercive assembly if UV, IR, bridge, projection, and mixed estimates held; persistent coercivity if those inputs were uniform and transport-compatible; downstream Mosco–Riesz nonleakage if prior spectral isolation existed.

Proposed constructions: comparison of the two carrier lineages; Wilson-character recognition; uniform graph-to-physical synthesis; collar patching; exact protected projection; surgery, incision, Čech realization, exhaustion, and branch selection.

Open: an April-native $SU(2)$ or $SU(3)$ witness; full one-scale physical coercivity; refinement-uniform survival; completed time-zero envelope; spacetime net; time translations; and invariant mass.

58 End of April: the proof had begun to act

April ended nowhere near the mature five-paper proof. It ended with a more valuable kind of honesty.

The finite carrier was no longer atmospheric. It had the form

$$\mathcal{C}_n = G^{E_n^+}, \quad \mathcal{H}_n = L^2(\mathcal{C}_n),$$

with Gauss constraints, Wilson-generated observables, localization, and an electric/-magnetic form package. The soft graph and mixed-block calculations showed how a coercive theorem might be assembled. The failures showed exactly where an auxiliary constant could not yet become a physical one.

I had not proved persistence. I had not recovered the low-rank witnesses. I had not constructed incision or bordism. I had not passed to a Haag–Kastler net or identified invariant mass.

But the map had touched time zero. The proof had begun to act.

That is what April earned.

Appendices

A April documentary timeline

Date	Event	Confidence	Source status
Apr. 1, before decision	Squeeze-surgery/refinement-passage proposal active	High	Recorded
Apr. 1	Decision for CIMP-D-26-00416	High for date and wording; exact time open	J12-S-E01
Apr. 1–2	Preglued localization-order correction	High	J12-S-C01/C02/C67
Apr. 4	Local W^* /GNS Dirichlet-form map	High	J12-S-L01
Apr. 5	Wilson, Gauss, collar, and coercivity paper skeleton	High	J12-S-L02
Apr. 7	Local, pre-vacuum, pre-continuum scope	High	J12-S-C03/C21
Apr. 8	Decisions for CIMP-D-26-00417 and 00418	High for date and wording; arrival order open	J12-S-E02/E03
Apr. 10–11	Local paper architecture; surgery/exhaustion assigned to sequel	High	J12-S-L03/C04/C05
Apr. 14	Canonical local-net surgery architecture with TODOs	High	J12-S-C68
Apr. 18	Compact-semisimple Wilson datum and centering	High	J12-S-C09
Apr. 20	Local dependency spine frozen; continuum/mass deferred	High	J12-S-C10
Apr. 24	Finite spatial carrier and coercive assembly program	High	J12-S-C35/C37–C52/C69
Apr. 26	Five unproved Roadmarks	High	J12-S-C64
Apr. 27	Branch-selection and incised-spacetime proposals	High	J12-S-C12/C65/C66
Apr. 28–29	Spacetime limits retained downstream; Wilson-generated observable system sharpened	High	J12-S-C32/C39/C41
Apr. 30	Exact month-end theorem status	Reconstructed	Audit of surviving corpus

B Editorial-event ledger

Manuscript	Decision date	Displayed basis	Review evidence	Prohibited inference
CIMP-D-26-00416	Apr. 1	Editorial-board assessment; informal expert consultation; insufficiently original ideas/results pertaining to CMP interests	No external report recovered	Mathematical invalidity or documented formal peer review
CIMP-D-26-00417	Apr. 8	Audience, scope, editorial domains, backlog, strict selection	No external report recovered	Same rationale as Apr. 1 or theorem-level verdict
CIMP-D-26-00418	Apr. 8	Audience, scope, editorial domains, backlog, strict selection	No external report recovered	Same rationale as Apr. 1 or theorem-level verdict

C Finite-scale carrier and coercivity ledger

Item	April object	Status at Apr. 30
Gauge group	Compact semisimple G	Recorded
Configuration carrier	$\mathcal{C}_n = G_n^{E_n^+}$	Exact finite specification
Hilbert carrier	$\mathcal{H}_n = L^2(\mathcal{C}_n)$	Exact finite specification; measure conventions to complete
Constraint	Gauss generators/averaging	Specified; compatibility proof incomplete
Observable system	Fixed-thickness Wilson-generated L^∞ -system	Recorded finite specification
Localization	Conditional expectation/collar extraction	Proposed; quantitative estimates incomplete
Form	Electric/magnetic split Q_n^ε	Specified; domains and closedness incomplete
Electric direction	Representation/Casimir penalty	Proposed; normalization and full form open
Soft direction	Weighted phased graph	Exact auxiliary finite definition
Protected projection	Several competing candidates	Open
One-scale physical coercivity	Conditional architecture	Not fully recovered as theorem
Persistent coercivity	$\inf_n \kappa_n > 0$ plus compatible projections	Open

D Witness ledger

Witness	April-native carrier/operator	April matrix/spectrum	Later data	April conclusion
$SU(2)$	Not recovered	Not recovered	Later tuples quarantined	Witness problem posed, not completed
$SU(3)$	Not recovered	Not recovered	July 24 packet quarantined	Witness problem posed, not completed

E Incision, surgery, and passage ledger

Operation	April status	Missing requirement
Squeeze/collar surgery	Named proposal	Typed operation and preservation theorem
Entropy surgery	Proposed branch-selection role	Monotonic functional and termination/control proof
Incision	Proposed complement M_{inc}	Selected Σ and admissible operation
Čech realization	Proposed map	Analytic descent of carrier, form, state, and projection
Bordism	Remembered/Open entry; no object recovered	Comparison object, composition, invariants
Mosco passage	Conditional downstream requirement	Common carriers/forms and convergence proof
Riesz passage	Conditional downstream requirement	Prior uniform isolation and contour

F Claim-to-source and firewall register

Claim	Historical label	Mathematical status	Firewall
Editorial decisions occurred and used quoted wording	Recorded	Administrative fact	Not mathematical evidence
Decisions hurt and prompted quitting thoughts	Remembered	Human testimony	Not proof evidence
Rejection changed the course of work	Reconstructed	Historical causal claim	Not sole origin of every April idea
Preglued localization had to precede completion/GNS	Recorded	Dependency correction	Not completed interface theorem
Finite time-zero carrier was specified	Recorded	Exact finite definition	Not continuum Yang–Mills theory
Wilson/Casimir/graph cost architecture existed	Recorded/mixed provenance	Finite and conditional	Not physical coercivity without bridge
Persistent coercivity became the true target	Recorded/Reconstructed	Uniformity requirement	Not proved
Surgery/incision/passage entered the plan	Recorded/Proposed	Construction plan	Not theorem

Claim	Historical label	Mathematical status	Firewall
Bordism entered the planning vocabulary	Remembered/Open	Proposed comparison idea	No typed April object or theorem
Later proof clarifies April	Modern reading	Later mathematics	Cannot repair April silently

G May handoff and quarantine

April handed forward the following tasks:

complete the finite carrier and form domains;
 recognize the protected physical kernel;
 construct source-verifiable $SU(2)$ and $SU(3)$ witnesses;
 prove refinement-uniform coercivity;
 type incision, surgery, and geometric comparison;
 establish controlled form and projection passage;
 reconstruct spacetime dynamics and identify invariant mass.

The later Wilson-tube proof, mature witness packets, frustum incision, scaled bordism, thick-to-thin reconstruction, continuum net, and invariant spectral transfer must enter the series only when their own months and sources authorize them.

April's ending is therefore not "the construction was complete." It is:

the proof had begun to act, and its remaining debts had become harder to hide.

Formal freeze note

Version 1.0 was the formally frozen, source-bounded edition produced from the source- and voice-edited Markdown. This Version 1.0.1 production update adds only the copyright notice and corresponding version metadata; it makes no mathematical, historical, or source-boundary revision. The note uses the frozen Mountain format of Research Note No. 11 without modifying that predecessor. Later evidence may be registered in a separate successor or documented corrigendum, but it may not silently rewrite this historical freeze.