ANNALS OF THE CHRYSENE FORMALISM

AI-AUGMENTED PEER-REVIEWED | VOL. 1, NO. 3 | ISSN 3144-2021 | OCTOBER 2026

ORTHOGONAL REVIEW RECORD

Addressing the Division Clock: Codon Gating at the Membrane, the Reusable X-A Catalyst, and the Set Point of the Lineage

Compiled by the Editorial Office
Annals of the Chrysene Formalism
Schaper Systems Press

Paper ID:	ACF-1.3-071
Issue:	Volume 1, Number 3
ISSN:	3144-2021
Review architecture:	Author-side check followed by independent referee report on the revised manuscript
Review focus:	Loop identities, status labels, viability bounds, concordance
Acceptance date:	2026-10-21
Online publication:	2026-10-21
Pages:	1453–1471
Document version:	v1.0
Last audited:	21 October 2026

Citation: Schaper, C. D. (2026). Addressing the Division Clock: Codon Gating at the Membrane, the Reusable X-A Catalyst, and the Set Point of the Lineage. *Annals of the Chrysene Formalism*, 1(3), 1453–1471. ISSN 3144-2021. `https://chrysene.com/index.php/acf/article/view/71` •
© 2026 Charles D. Schaper. Distributed under the CC Attribution-NonCommercial-NoDerivatives 4.0.

Declared conflict

The initial author-side check was prepared by the same system that drafted the manuscript and wrote its blocks. A subsequent independent referee report was prepared for the Editorial Board after the first-round revisions were incorporated. There is no author-reply section.

> **Scope of Review**
>
> The manuscript reanalyses the loop of Articles 67–69 with the division reset applied, finds that the fixed line of Article 69 is never occupied, and shows that under an osmolyte input proportional to the particle count a fixed number of membrane sites cannot set a size. It

then replaces the input with a per-cycle lipid flux tied to genome length, an X-A catalyst templated by class-00000 hexamers, and codon-gated excision at a reusable catalyst. On that loop it proves four identities (catalyst density, remnant gauge, period, ceiling) and a global convergence theorem for mother lines without condensation. Corrections to Articles 67–69 are entered as rulings. The architecture is coherent, and the central identities are unusually clean for the subject: the bud's size is read off the remnant, and the period off the lipid flux.

Compiled disposition

Accept with minor revisions. The first-round required corrections (R1–R9, C1–C2) were incorporated. The independent referee confirms the principal results and notes residual algebraic typos, unresolved cross-references, and typesetting items. No further computation is required. The exact results on which the paper rests (Theorems 7.4, 7.5 and 8.3, Propositions 7.3 and 8.2) stand.

Required before print

Production and synchronization items only. Resolve the residual algebraic typos in the proof of Proposition 8.2, replace the parenthetical placeholder cross-references to Articles 64, 67, 68 and 69 with published numbers, and clear the typesetting items listed by the independent referee.

Contents

1 Initial author-side check: required corrections **3**

2 Independent referee report on the revised manuscript **4**

1 Initial author-side check: required corrections

R1 – Status labels

Convention 2.1 reserves [A] for finite or axiom-free statements. Several propositions and theorems labelled [A] use registered hypotheses. Required: relabel [D] and name the hypotheses in each statement. The argument of each is sound; the label is not.

R2 – Hypothesis used without naming

Theorem 8.3 is stated on the slice $w = \iota_{\text{eff}}$ at $c = 0$, but ι_{eff} is the effective input only once the catalyst is at x^*. Required: state the theorem on the invariant set $\{x = x^*,\ w = \iota_{\text{eff}}\}$, and add the sentence that guarantees continuity of F.

R3 – Existence in Theorem 5.2

The theorem asserts that the size at birth has a stable fixed point when ϕ is increasing. The proof shows only that the birth-size map has slope below one wherever a fixed point lies. Required: restate as a fixed point, where one exists, is stable, neutral or unstable according as ϕ is increasing, constant or decreasing, or supply the existence argument.

R4 – Viability probabilities are upper bounds

Proposition 10.9 reports viability probabilities that are necessary conditions only, and only at $c = 0$. Required: rename the row P(necessary condition met), state that it bounds viability from above, and correct the abstract.

R5 – The 0.750 is structural

Proposition 8.5 reports that 0.750 of births fall below the floor without explanation. The reviewer's decomposition shows every bud is below 25 nm, and so are the mothers whose parent was born a bud. The fraction is $\frac{1}{2} + \frac{1}{4}$ less one cell in 4096, a fact about the lineage structure. Required: emit this decomposition and state it. It is a stronger statement than the one made.

Further required items from the initial check: R6 (escape radius is a computed criterion, not a proof of divergence); R7 ("no stable scale" is two instances); R8 (the two mixed-gate tables are not comparable); R9 (Proposition 6.1 is an inference, not arithmetic); C1 (symbol collision between α, β and the Article 62 pair); C2 (Sections 4–5 inherit the misread L_{lip}).

2 Independent referee report on the revised manuscript

Independent assessment — Accept with minor revisions

A subsequent independent referee report was prepared for the Editorial Board after the first-round revisions (R1–R9, C1–C4, D1–D3) were incorporated. It recommends Accept with Minor Revisions. The report confirms five principal advances: resolution of the hybrid division-reset dynamics; impossibility of size control under particle-proportional input with fixed sites; genome-tied lipid flux and the three loop identities; global mother-line convergence and the iterated-function-system population structure; and mixed-gate tolerance with genomic separation of size and period. It notes the manuscript's self-critical standard in the precedence rulings of Section 12.3.

M1 — Algebraic typos in the proof of Proposition 8.2

In the proof of Proposition 8.2 the right-hand side is written as $1 - \theta$ (dropping the subscript s on θ_s), and the division radius on the bud line is written as σ_d instead of ρ_d. Both final formulas are unaffected. Restoring the subscript and replacing σ_d with ρ_d will make the proof effortless to read.

M2 — Placeholder cross-references

In Proposition 4.2, Section 12.3 (Rulings 12.1, 12.3, 12.4), Target 12.10, and Table 4, cross-references to numbered environments in upstream articles still appear as symbolic parenthetical labels. These should be replaced with their published numbers (e.g., Article 69 Remark (equal increments) → Remark 4.2; Theorem (period) → Theorem 7.1; Corollary (closure) → Corollary 9.1; Target (encoder) → Target 10.6).

M3 — Empty section body under Appendix C

The heading C Correction ledger is followed immediately by D Revision record with no intervening text because Table 2 floats. Adding a one-sentence pointer under Appendix C will prevent the heading from appearing orphaned.

Minor and typographical items from the independent report

1. In Table 2 the corrected photon energy is printed as 341.8, 99.1 kJ/mol (missing the leading 2 in 299.1).
2. Several status macros either failed to render (leaving blank whitespace) or collided with the preceding numeral without a space (e.g., 69.1A, 67.4A).
3. The verbatim printout from block X9 on p. 1468 is slightly too wide for the column, clipping the unit nm.

4. In Table 2 the corrected entry prints concentrationdependent- with no space and a trailing hyphen.

5. Volume and issue numbers should be harmonized: the banner and footer should agree with the citation line (1(3):1453–1471), and the references to Articles 66–69 should use the issued issue and page numbers.

The independent report finds that these items do not affect the principal results. The catalyst density, remnant gauge, period identity, and global convergence theorem remain intact.

Recommendation

Accept with minor revisions. The first-round required corrections were incorporated. Resolve the residual algebraic typos, placeholder cross-references, and typesetting items noted by the independent referee. No further computation is required. The exact results on which the paper rests stand.

References

[Art69] C. D. Schaper. The first loop. *Annals of the Chrysene Formalism* 1(3):1423–1431, 2026. Article 69. DOI: `https://doi.org/10.68366/11czsz09`.

Revision history

Version	Date	Notes
v1.0	2026-10-21	Review record published with Article 71.

Living Document Notice

As with any actively developing field, the mathematical and applied claims in this article are subject to periodic re-evaluation as the surrounding formalism matures and as the journal's AI-augmented review tooling advances. Consistent with standard scientific practice for provisional or fast-moving frameworks, this article and its review record may be re-audited by subsequent review systems, and a revised version bearing an updated review history may be issued to reflect developments in the field. Readers should consult the Revision History table above, and the journal's records, for the current version number and audit date of this article.

Editorial Disclaimer

The *Annals of the Chrysene Formalism* aims to develop the Chrysene Formalism through the application of advanced mathematics, using AI systems selected as well suited to this task. In pursuing this aim, it is possible that errors occur during the mathematical progression and analysis of the formalism, including within the review and editing process itself. However, the formalism is constructed within a multidisciplinary, horizontal framework that is grounded in a specific instantiation of molecular matter and its associated networks, an instantiation that is invariant and falsifiable. For this reason, the editorial office considers the formalism well suited to an AI-augmented approach, and anticipates that this approach will continue to be adapted as AI models and the surrounding mathematical understanding advance.