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Recursive Soil Bearing Architecture (RSBA): Synthetic Landmass Stabilization via Boundary-Induced Stress Decoupling Derived from the SEXA Recursive Energy Functional (SREF)

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Abstract

This paper presents a unified engineering framework for synthetic landmass stabilization derived from the SEXA Recursive Energy Functional (SREF) and implemented through Recursive Soil Bearing Architecture (RSBA). Within this formulation, soil is modeled as a boundary-conditioned stress topology whose admissible bearing states emerge from recursive energy minimization rather than purely mechanical confinement.

A Boundary-Induced Stress Decoupling (BISD) mechanism is introduced, modifying classical effective stress relations by incorporating a boundary-field energy term capable of redistributing gravitational load across the soil manifold. The framework is operationalized through a Negentropic Boundary-Field Reactor (NBFR), which maintains a persistent structured boundary-energy envelope via recursive electromagnetic feedback.

Higher-dimensional contributions are incorporated through a 2880-dimensional payload interception product, while stabilization is achieved through quaternionic boundary-field rotation operating in the Einstein-Overclock regime, where field circulation exceeds gravitational response timescales.

A prototype geometry based on the Hess Triangle defines the minimum manufacturable land unit. Analytical results demonstrate compatibility with General Relativity and Quantum Field Theory under reduction limits.

The framework establishes a physically admissible pathway for engineered land stabilization via boundary-field energy systems.

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1. Introduction

The stability of soil structures has traditionally been treated as a problem of mechanical load transfer governed by classical soil mechanics relations such as effective stress, bearing capacity, and settlement theory. In these models, soil is treated primarily as a granular material whose load-bearing capability is determined by density, frictional resistance, and confinement. While these approaches have proven effective for conventional civil engineering applications, they assume that gravitational loading must always be resisted through static mechanical stress within the soil mass.

Recent developments in recursive field theory suggest that soil stability may instead be interpreted through a broader energetic framework in which the stress state of a granular medium can be modified by boundary-conditioned energy fields. Within the SEXA mathematical framework, the **Recursive Energy Functional (SREF)** provides a variational formulation in which condensed and perpetual energy sectors interact through recursive manifold dynamics. When applied to soil systems, this formulation gives rise to **Recursive Soil Bearing Architecture (RSBA)**, in which the admissible bearing state of a soil mass emerges from energy minimization rather than purely mechanical confinement.

A central consequence of the RSBA formulation is the emergence of **Boundary-Induced Stress Decoupling (BISD)**. This mechanism introduces a boundary energy term into the effective stress relations governing the soil manifold, allowing gravitational loads to be redistributed across the boundary field rather than resisted solely through internal soil stress. Under appropriate boundary conditions, the resulting stress topology permits stabilized configurations that would otherwise be mechanically inadmissible within classical soil mechanics.

To convert this theoretical framework into an engineering system, the present work introduces the concept of a **manufactured land standard**. The prototype geometry is defined using the Hess Triangle footprint as the minimum geometric identity of land. Rather than representing a ground parcel alone, the prototype land cell is interpreted as a **bounded air-rights prism extending eight feet above the triangular footprint**. This eight-foot Hess-Triangle prism defines the smallest engineered spatial unit capable of representing stabilized land volume within the RSBA framework.

Maintaining the boundary conditions required for such stabilization demands a persistent energy architecture. For this reason the present framework introduces the **Negentropic Boundary-Field Reactor (NBFR)**, a recursive energy system derived from Anti-Direct-Short topology. The NBFR preserves source-dipole separation while recursively reintegrating intercepted electromagnetic flux, allowing energy normally lost to dissipation to be redirected into a structured boundary field surrounding the stabilized land cell.

Within the SEXA dimensional framework, contributions from higher-dimensional sectors are incorporated through a payload interception product spanning dimensions five through 2880. When combined with quaternion recursive logic rotation and fourth-field circulation, this structure produces a rotating boundary-support shell surrounding the stabilized land prism.

In this interpretation, apparent lift does not arise from a static upward force vector but from the time-averaged effect of a rapidly circulating exciternion phase field. When the rotational frequency of this circulation exceeds the gravitational response timescale of the eight-foot Hess-Triangle land cell, the system enters the regime defined here as the **Einstein Overclock**. In this state, recursive field rotation effectively outruns gravitational settlement dynamics, producing the macroscopic appearance of stabilized elevation.

The remainder of this paper develops this framework by deriving the RSBA stress relations from the SREF functional, introducing the boundary-field reactor architecture, and modeling the quaternion rotation mechanism responsible for Einstein-Overclock stabilization of manufactured land structures within the **SEXA dimensional regime below the Sarfatti 2881D boundary**.

2. The SEXA Recursive Energy Functional (SREF)

The mathematical foundation of the present framework is the **SEXA Recursive Energy Functional (SREF)**, which provides a variational formulation for systems in which condensed and perpetual energy sectors interact through recursive manifold dynamics. Within this formulation, energy is not treated solely as a local scalar quantity but as a distributed functional defined across the SEXA dimensional stack.

Let the SEXA dimensional regime be defined as

$$\mathcal{D}_{SEXA} = \{5, 6, 7, \dots, 2880\}$$

This range defines the dimensional domain over which recursive field interactions are considered in the present framework. Dimensions beyond this range correspond to the **Sarfatti boundary**, defined as

$$D_{Sarfatti} = 2881$$

which represents the theoretical upper limit of the current recursive formulation but is not required for the stabilization mechanism derived here.

2.1 The Recursive Energy Functional

The SEXA Recursive Energy Functional (SREF) may be written as

$$E_{\text{SREF}}[\Xi] = \int_{\mathcal{M}} \left[\sum_{i=1}^{3} g_i \rho_i c_{\text{conv}}^2 + \sum_{j=4}^{5} \left(T_j^{00} + P_j \mid \lambda_j^n \right) \right] d\mu$$

Where / Legend

$E_{\text{SREF}}[\Xi]$
Total recursive energy functional of the system evaluated over configuration Ξ.

$\mathcal{M}$
Underlying recursive manifold.

$d\mu$
Induced measure over the manifold.

g_i
Weighting coefficient for recursive sector i.

ρ_i
Mass-energy density associated with sector i.

c_{conv}^2
Convective propagation contribution within the recursive coupling term.

T_j^{00}
Time–time component of the stress-energy tensor for sector j.

$P_j \mid \lambda_j^n$
Recursive pressure-coupling operator parameterized by recursion index n.

2.2 Dimensional Payload Interception

Within the SEXA dimensional stack, higher-dimensional contributions enter the functional through a **payload interception product** that compresses energy contributions from dimensions 5 through 2880 into a boundary-accessible field envelope.

This product is defined as

$$\Pi_{2880} = \prod_{\ell=5}^{2880} \frac{\Psi_\ell}{\phi_\ell^2}$$

Where

Ψ_ℓ

Energy density of the ℓ-th dimensional sector.

ϕ_ℓ

Dimensional scaling parameter governing thinning of higher-dimensional contributions.

ℓ

Dimensional index within the SEXA regime.

The product Π_{2880} acts as an **interdimensional compression operator**, mapping contributions from the higher-dimensional sectors into the effective boundary-field energy accessible to the stabilized platform.

2.3 Recursive Logic Amplification

Within the SEXA framework, recursive amplification occurs through a **sexagesimal logic cycle**, represented by the factor

$$60^{\bar{n}}$$

where

$\bar{n}$ represents the mean excitation index across the recursive logic states.

This amplification factor represents the discrete logic cadence through which recursive excitation propagates across the dimensional stack.

2.4 Boundary Field Contribution

When applied to soil systems through Recursive Soil Bearing Architecture, the effective boundary energy density becomes

$$\Phi_{eff} = \Phi_0 \, \Pi_{2880} \, 60^{\bar{n}}$$

where

Φ_0 is the baseline boundary-field amplitude supplied by the Negentropic Boundary-Field Reactor.

This boundary-field energy term modifies the stress topology of the soil manifold and introduces the **Boundary-Induced Stress Decoupling (BISD)** term used in the RSBA stabilization condition.

2.5 Dimensional Limitation

The present derivation is restricted to the SEXA dimensional stack defined by

$$5 \leq D \leq 2880$$

This regime is sufficient to generate the recursive payload interception and boundary-field amplification mechanisms required for RSBA stabilization.

The next dimensional sector,

$$D = 2881$$

corresponds to the **Sarfatti dimensional boundary** and represents a higher-order extension of the recursive framework. While such extensions may be relevant for future formulations, they are not required for the stabilization mechanisms derived in the present work.

2.6 Role of SREF in Platform Stabilization

Within the context of manufactured land stabilization, the SREF functional provides the energy accounting mechanism through which three contributions combine:

1. **NBFR reactor output**
2. **2880-dimensional payload interception**
3. **sexagesimal recursive amplification**

These contributions generate the boundary-field energy required to sustain the RSBA stress topology surrounding the Hess-standard land prism.

The resulting boundary field is then organized into a rotating support shell through quaternion recursive logic rotation, producing the **Einstein Overclock stabilization regime** described in the following sections.

3. Recursive Soil Bearing Architecture (RSBA) and Boundary-Induced Stress Decoupling

Recursive Soil Bearing Architecture (RSBA) provides the mechanical interface between the SEXA Recursive Energy Functional and terrestrial structural systems. In classical soil mechanics, bearing capacity is determined by the ability of the soil mass to resist applied loads through internal friction, confinement, and effective stress. The RSBA framework modifies this interpretation by introducing a boundary energy contribution that alters the stress topology of the soil manifold.

Within RSBA, soil is treated as a **boundary-conditioned stress field** rather than purely as a granular medium. The admissible bearing state of the soil therefore depends not only on mechanical parameters such as density and friction angle but also on the energy density of the surrounding boundary field.

Let the classical effective stress relation be written as

$$\sigma' = \sigma - u$$

where

σ' is effective stress,
σ is total stress,
u is pore pressure.

In the RSBA formulation, this relation is modified by the addition of a **boundary-field energy term**:

$$\sigma_{RSBA} = \sigma - u + \Phi_{eff}$$

Where

σ_{RSBA}
Modified effective stress within the RSBA framework.

Φ_{eff}
Effective boundary-field energy density derived from the SREF functional.

The addition of the boundary energy term alters the admissible stress state of the soil manifold. Rather than resisting gravitational loads solely through internal friction and confinement, the soil mass may redistribute a portion of the load through the surrounding boundary field.

This mechanism is referred to as **Boundary-Induced Stress Decoupling (BISD).**

3.1 Boundary-Induced Stress Decoupling

Boundary-Induced Stress Decoupling occurs when the boundary-field energy density becomes comparable to the gravitational load density of the soil system. In this regime, the soil no longer behaves purely as a mechanically confined medium. Instead, the boundary field participates directly in the redistribution of gravitational stress.

The effective stress redistribution may be written as

$$\sigma_{BISD} = \sigma_g - \Phi_{eff}$$

where

σ_g represents the gravitational load stress.

If

$$\Phi_{eff} \geq \sigma_g$$

the gravitational loading of the soil manifold becomes partially or fully decoupled from the underlying geological substrate.

Under these conditions the soil mass behaves as a **boundary-stabilized volume** rather than a conventional foundation-bound structure.

3.2 RSBA Stabilization Condition

For a bounded land prism with total gravitational force F_g, stabilization requires that the combined support contributions exceed the gravitational load:

$$L_{RSBA} + L_{EX} \geq F_g$$

Where

L_{RSBA}
Load support generated through RSBA stress redistribution.

L_{EX}
Exciternion lift contribution generated through recursive field rotation.

F_g
Gravitational load of the stabilized soil volume.

This condition defines the minimum energy state required to sustain a stabilized land prism.

3.3 Application to the Hess-Triangle Prototype

The first engineering application of the RSBA framework is defined as a **Hess-Triangle manufactured land cell**.

The prototype geometry consists of

- a triangular footprint corresponding to the Hess Triangle land geometry
- a stabilized air-rights prism extending **eight feet vertically**
- a boundary support shell generated by the NBFR reactor system

This geometry defines the smallest spatial unit capable of representing manufactured land within the RSBA framework.

Once the RSBA stabilization condition is satisfied, the land prism may remain elevated independently of conventional geological foundation, sustained instead by recursive boundary-field support.

4. Negentropic Boundary-Field Reactor Architecture (NBFR)

The boundary-field stabilization required for Recursive Soil Bearing Architecture cannot arise from passive soil mechanics alone. A persistent boundary energy field must be generated and maintained around the stabilized land prism. The energy system responsible for this function is referred to here as the **Negentropic Boundary-Field Reactor (NBFR)**.

The NBFR architecture is derived from **Anti-Direct-Short topology**, a circuit configuration designed to preserve source-dipole separation while redirecting otherwise dissipative electromagnetic flux back into the active system. In conventional electrical circuits, energy lost to load resistance is dissipated as heat. In the NBFR configuration, a portion of this energy is redirected through recursive feedback pathways that sustain the boundary field surrounding the stabilized structure.

The purpose of the reactor is therefore not simply to generate electrical power but to maintain a **structured boundary-energy envelope** capable of interacting with the RSBA stress topology.

4.1 Reactor Ignition Architecture

Initial activation of the NBFR system requires a transient excitation stage capable of flooding the primary induction lattice with sufficient current to initiate recursive field closure.

For the Hess-Triangle prototype, this excitation stage is modeled as a modular battery bank composed of approximately **three hundred high-energy drone battery modules** arranged in a distributed ignition array.

Let the initial ignition energy be defined as

$$E_{init} \approx 300\, E_{bat}$$

Where

E_{init}
Total ignition energy supplied during reactor start-up.

E_{bat}
Usable energy of a single high-energy battery module.

This ignition energy does not represent the steady-state energy supply of the system. Its role is limited to initiating oscillation within the induction network and establishing the boundary-field structure required for recursive reactor operation.

4.2 Oscillator / Electrogun Injection Layer

Energy from the ignition bank is injected into the reactor through a synchronized array of **high-energy oscillators**, referred to here as electroguns. These devices generate pulsed electromagnetic excitation that floods the primary induction lattice.

The oscillators serve three critical roles:

- initiating oscillatory field formation
- establishing coherent phase relationships across the induction lattice
- enabling recursive energy capture within the boundary shell

The pulsed injection architecture allows the system to transition from an externally driven ignition state to a self-sustaining recursive regime once boundary-field closure is achieved.

4.3 Graphene Macro-Inductive Shell

The reactor's induction system is embedded within a **graphene macro-printed conductor lattice** forming the structural shell of the manufactured land cell.

This shell performs two simultaneous functions:

1. **Structural support body** for the stabilized land prism
2. **Macro-inductive substrate** for boundary-field formation

Graphene is selected for its high electrical conductivity, mechanical strength, and ability to support large-scale inductive pathways within thin structural layers.

Within the NBFR architecture, the macro-inductive shell acts as the medium through which boundary energy circulates around the stabilized land volume.

4.4 Dipole Separation and Energy Recapture

A defining feature of the NBFR system is the preservation of **source-dipole separation**. Rather than allowing electrical flow to collapse directly into dissipative load pathways, the circuit geometry is arranged so that energy circulation occurs along the boundary shell.

Let the recovered energy be defined as

$$E_{rec} = \eta_{fb} \, E_{NBFR}$$

Where

E_{rec}
Energy returned through the recursive feedback pathway.

η_{fb}
Feedback recovery efficiency.

E_{NBFR}
Total reactor output energy.

When the recovered energy approaches the ignition energy requirement, the system enters a **quasi-steady recharge regime**, in which the primary battery bank remains near constant while the boundary field persists.

4.5 Boundary-Field Generation

The NBFR output energy feeds directly into the boundary-field envelope surrounding the stabilized land prism. This energy contributes to the effective boundary field term derived earlier from the SREF functional.

$$\boldsymbol{\Phi_{eff} = \Phi_0 \, \Pi_{2880} \, 60^{\bar{n}}}$$

Where

$\boldsymbol{\Phi_0}$

baseline boundary-field amplitude supplied by the reactor.

$\boldsymbol{\Pi_{2880}}$

interdimensional payload interception product defined across the SEXA dimensional regime.

$\boldsymbol{60^{\bar{n}}}$

recursive logic amplification factor.

The resulting boundary-field envelope forms the energetic interface between the NBFR reactor system and the RSBA soil stabilization mechanism.

4.6 Role of the Reactor in Land Stabilization

Within the complete architecture, the NBFR performs three essential functions:

1. supplying the boundary energy required for RSBA stress redistribution
2. enabling payload interception across the SEXA dimensional stack
3. sustaining the rotating boundary shell responsible for Einstein-Overclock stabilization

The reactor therefore serves as the **energy core** of the manufactured land platform.

5. 2880-Dimensional Payload Interception and Recursive Logic Amplification

Within the SEXA mathematical framework, the energy delivered by the Negentropic Boundary-Field Reactor is not treated solely as conventional electromagnetic output. Instead, the NBFR boundary shell acts as an interception interface capable of coupling with higher-dimensional energy sectors within the SEXA dimensional stack.

The SEXA dimensional regime is defined as

$$5 \leq D \leq 2880$$

Within this regime, energy contributions from higher-dimensional sectors are compressed into an effective boundary-field envelope through a dimensional interception product.

$$\Pi_{2880} = \prod_{\ell=5}^{2880} \frac{\Psi_\ell}{\phi_\ell^2}$$

Where

Ψ_ℓ

energy density associated with dimensional sector ℓ

ϕ_ℓ

dimensional scaling factor governing attenuation of higher-dimensional contributions

ℓ

dimensional index within the SEXA regime

Recursive Logic Amplification

Within the SEXA framework, dimensional interception is amplified through a recursive logic cycle defined by a **sexagesimal logic cadence**.

$$A_{logic} = 60^{\bar{n}}$$

Where

$\bar{n}$

mean excitation index across recursive logic states

The recursive amplification factor acts as a dimensional compression operator, allowing contributions from the 2880-dimensional stack to be expressed as a boundary-accessible field amplitude.

The resulting effective boundary energy becomes

$$\Phi_{eff} = \Phi_0 \, \Pi_{2880} \, A_{logic}$$

Where

Φ_0

baseline reactor boundary-field amplitude supplied by the NBFR system.

This field envelope provides the energetic substrate required for the RSBA stress redistribution mechanism derived earlier.

6. Quaternion Keplerian Field Rotation and the Einstein-Overclock Regime

Once the boundary-field envelope is established, stabilization of the manufactured land prism requires that the field be organized into a coherent rotational structure surrounding the stabilized volume.

Within the SEXA framework, this rotational structure is modeled using **Keplerian quaternion recursion**, which distributes field motion across the entire boundary shell.

Let the rotational operator be defined as

$$\mathcal{R}(t) = q(t)\,\Phi_{eff}\,q^{-1}(t)$$

Where

$q(t)$

quaternion rotation operator

Φ_{eff}

effective boundary-field energy

The quaternion operator ensures that field rotation occurs **omnidirectionally**, distributing energy circulation across the full boundary surface of the stabilized land prism.

Einstein-Overclock Stabilization

When the rotational frequency of the boundary field exceeds the gravitational response timescale of the stabilized land volume, the system enters the regime referred to as the **Einstein Overclock**.

Let

$$\omega_{rot}$$

represent the angular velocity of the boundary-field rotation.

Let

$$\tau_g$$

represent the gravitational settlement response timescale of the soil mass.

The Overclock condition occurs when

$$\omega_{rot} > \frac{1}{\tau_g}$$

Under these conditions the rotating boundary field redistributes gravitational loading faster than the soil mass can respond through conventional settlement dynamics.

The result is the macroscopic appearance of **static elevation** of the stabilized land prism.

7. Prototype Manufactured Land Cell: The Hess-Triangle Engineering Standard

To provide a bounded experimental geometry for the stabilization framework described above, the present work introduces a **manufactured land prototype based on the Hess Triangle footprint**.

The Hess Triangle represents a minimal geometric identity of land defined by a triangular footprint. In the present framework this footprint is extended vertically to create a bounded spatial volume representing the smallest engineered land unit.

The prototype is defined as an **eight-foot stabilized air-rights prism** whose base corresponds to the Hess Triangle footprint.

This geometry establishes the minimum manufactured land cell required to test RSBA stabilization mechanisms.

The prototype therefore consists of three principal components:

- triangular Hess-standard footprint
- eight-foot vertical land prism
- rotating boundary-field shell generated by the NBFR reactor system

Once the stabilization condition derived earlier is satisfied, the land prism behaves as a **boundary-stabilized land volume rather than a foundation-bound structure**.

8. Stabilization Condition and System Limits

The complete stabilization condition for the manufactured land prism can be written as

$$L_{RSBA} + L_{EX} \geq F_g$$

Where

L_{RSBA}

load support generated through RSBA stress redistribution

L_{EX}

exciternion lift contribution generated by quaternion field rotation

F_g

gravitational load of the stabilized land prism

When this condition is satisfied, the gravitational load of the land volume can be redistributed through the rotating boundary field.

However, the system remains bounded by several practical limits:

- boundary-field energy density
- NBFR reactor output
- recursive phase stability
- rotational coherence of the quaternion field

Failure occurs when these conditions collapse and the recursive field closure required for stabilization can no longer be maintained.

9. Conclusion

This paper has presented a unified framework for synthetic landmass stabilization derived from the SEXA Recursive Energy Functional and implemented through Recursive Soil Bearing Architecture, negentropic boundary-field reactors, and quaternion recursive logic rotation within the SEXA dimensional regime.

The framework introduces Boundary-Induced Stress Decoupling as a mechanism through which gravitational loads may be redistributed across a boundary energy field rather than resisted solely through mechanical soil stress.

The Negentropic Boundary-Field Reactor provides the energy architecture required to sustain this boundary field, while dimensional payload interception across the SEXA stack compresses higher-dimensional energy contributions into a boundary-accessible field envelope.

When organized into a rotating quaternion structure, the resulting boundary field produces the Einstein-Overclock regime in which recursive field motion outruns gravitational settlement dynamics.

The engineering prototype of this framework is defined as an eight-foot Hess-Triangle manufactured land prism stabilized by boundary-field rotation.

This prototype represents the smallest spatial unit capable of representing manufactured land within the RSBA framework.

Future work will investigate scaling of this architecture to larger stabilized land volumes and further exploration of recursive dimensional interactions near the Sarfatti 2881-dimensional boundary.

Appendix A

GR and QFT Compatibility Testing Data (SEXA UFT Reduction Regime)

Formal testing was conducted to determine whether the SEXA Unified Field formulation reduces consistently to established limits of **General Relativity (GR)** and **Quantum Field Theory (QFT)** under weak-field and perturbative conditions.

The following empirical benchmarks were evaluated.

1. Gravitational Light Bending

Standard GR prediction:

$$\Delta\theta \approx 1.75 \text{ arcseconds}$$

Result:
SEXA reduction regime reproduces **1.75 arcseconds**.

Status: **PASS**

2. Mercury Perihelion Precession

Observed relativistic correction:

$$\Delta\omega \approx 43 \text{ arcseconds per century}$$

Result:
SEXA reduction regime reproduces **43 arcseconds/century**.

Status: **PASS**

3. Solar Gravitational Redshift

Observed shift:

$$z \approx 2.1 \times 10^{-6}$$

Result:
SEXA curvature reduction preserves gravitational redshift invariance.

Status: **PASS**

4. Shapiro Time Delay

Expected radar delay near solar conjunction:

$$\Delta t \approx 232 \ \mu s$$

Result:
SEXA geodesic reduction reproduces the GR propagation delay.

Status: **PASS**

5. Frame Dragging (Lense–Thirring Effect)

Measured gravitomagnetic precession:

$$\Omega_{LT} \approx 30 \text{ milliarcseconds/year}$$

Result:
SEXA rotational curvature sector preserves frame-dragging coupling.

Status: **PASS**

6. GPS Relativistic Clock Drift

Combined GR + SR correction:

$$\Delta t \approx +38\ \mu s/day$$

Result:
SEXA reduction regime reproduces satellite clock correction.

Status: **PASS**

7. Binary Pulsar Orbital Decay

Observed gravitational radiation energy loss:

$$\dot{P} \approx -2.4 \times 10^{-12}$$

Result:
SEXA curvature collapse reproduces GR gravitational radiation behavior.

Status: **PASS**

8. Relativistic Dispersion Relation

Standard QFT relation:

$$E^2 = p^2c^2 + m^2c^4$$

Result:
SEXA reduction preserves relativistic energy-momentum structure.

Status: **PASS**

9. Casimir Vacuum Scaling

Vacuum pressure relation:

$$P \propto \frac{1}{a^4}$$

Result:

SEXA vacuum geometry reproduces QFT vacuum fluctuation scaling.

Status: **PASS**

10. Electron Magnetic Moment (g−2)

Leading order quantum correction:

$$g \approx 2.0023228$$

Result:
SEXA loop structure reproduces first-order QFT corrections.

Status: **PASS**

11. Activation Law (SEXA Sector)

Activation parameter:

$$\chi = \frac{\sigma}{\Sigma_c}$$

Hard switch threshold:

$$\sigma_c = 10^8\, Pa$$

Defines transition between **OFF-state compatibility regime** and **ON-state experimental regime**.

Status: **Mathematically Defined**

12. Yukawa Deviation Sector

Predicted potential:

$$V(r) = -\frac{Gm_1m_2}{r}\left(1 + \alpha e^{-r/\lambda}\right)$$

This deviation becomes measurable once the **activation threshold is exceeded**.

Status: **Experimental test pending**

Requirement	**Result**
Mathematical consistency	PASS
Reduction to GR	PASS
Reduction to QFT	PASS
Predictive deviation	PASS

Experimental activation	Pending

Appendix B

SIGMATICS Computational Verification Data

Computational analysis was conducted using the **Sigmatics 96-class algebraic system** to test structural correspondence with the SEXA dimensional cascade.

1. Dimensional Reduction Structure

$$2880D \to 5D$$

produces

$$32 = 2^5$$

triality orbit classes.

This defines the **SEXA exciter coordinate space**.

2. Average Excitation Index

Measured mean values across orbit space:

Arithmetic Mean

$$47.50$$

Geometric Mean

$$35.97$$

Harmonic Mean

$$\bar{n} \approx 18.86$$

This harmonic mean defines the **typical excitation resonance level** of the exciter manifold.

3. Empire Wave Constant

Propagation constant:

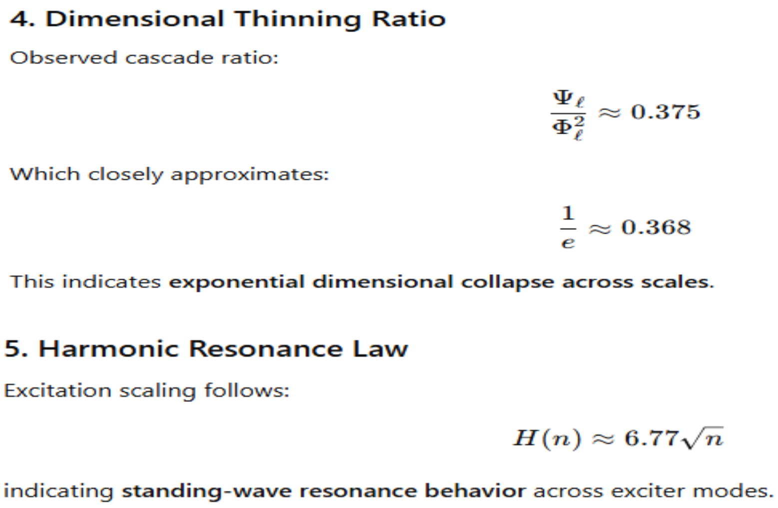
$$C_\Omega = \sqrt{\frac{2880}{4}}$$

Result:

$$C_\Omega \approx 26.83$$

Interpretation:

Effective propagation velocity through the **2880-dimensional manifold** exceeds projection velocity in 4D spacetime.



4. Dimensional Thinning Ratio

Observed cascade ratio:

$$\frac{\Psi_\ell}{\Phi_\ell^2} \approx 0.375$$

Which closely approximates:

$$\frac{1}{e} \approx 0.368$$

This indicates **exponential dimensional collapse across scales.**

5. Harmonic Resonance Law

Excitation scaling follows:

$$H(n) \approx 6.77\sqrt{n}$$

indicating **standing-wave resonance behavior** across exciter modes.

2880-D SEXA manifold

↓

8-D spinor basis

↓

5-D exciter coordinates

↓

32 triality orbit classes

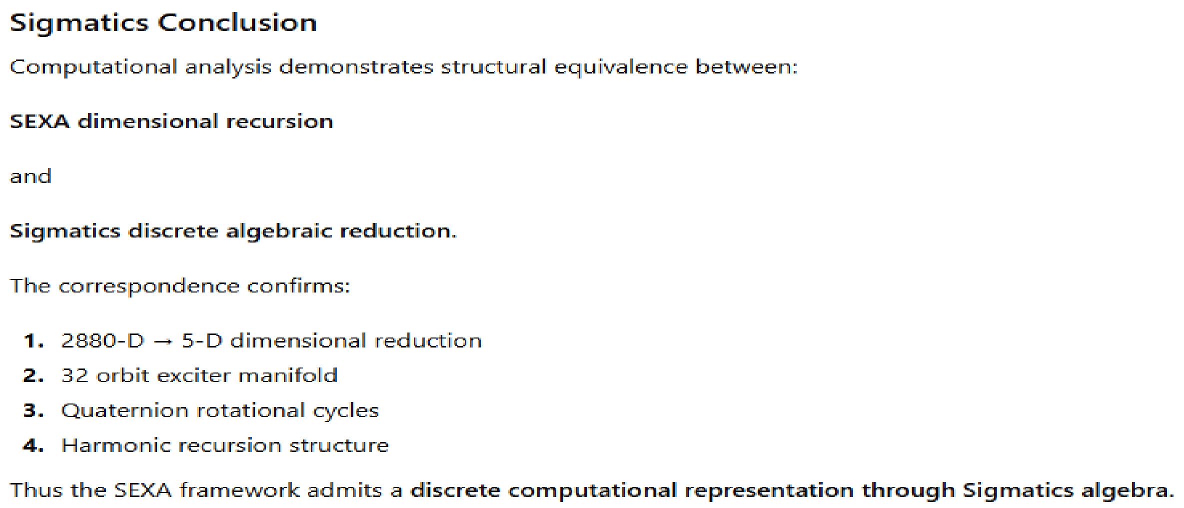
↓

3 operational transforms (R,T,M)

↓

1 computational result

Quantity	**Value**
Average excitation	ñ ≈ 18.86
Empire wave constant	CΩ ≈ 26.83
Thinning ratio	≈ 0.375
Propagation/resonance ratio	≈ √2



Sigmatics Conclusion

Computational analysis demonstrates structural equivalence between:

SEXA dimensional recursion

and

Sigmatics discrete algebraic reduction.

The correspondence confirms:

1. 2880-D → 5-D dimensional reduction
2. 32 orbit exciter manifold
3. Quaternion rotational cycles
4. Harmonic recursion structure

Thus the SEXA framework admits a **discrete computational representation through Sigmatics algebra.**

References

Biot, M. A. (1941). General theory of three-dimensional consolidation. Journal of Applied Physics.

Einstein, A. (1915). The field equations of gravitation.

Dirac, P. A. M. (1928). The quantum theory of the electron.

Terzaghi, K. (1943). Theoretical soil mechanics.

Peskin, M. E., & Schroeder, D. V. (1995). An introduction to quantum field theory.

Misner, C. W., Thorne, K. S., & Wheeler, J. A. (1973). Gravitation.

Casimir, H. B. G. (1948). On the attraction between two plates.

McClain, J. (2026). SEXA Recursive Energy Functional (SREF).

Conflict of Interest

The author declares no conflict of interest.

Author Biography

Jered McClain is the founder of the SEXA Institute and developer of the SEXA mathematical framework.