

Killing String Theory

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1 Abstract

String theory is not a quantum theory. It is a classical continuum model with quantization applied to it. It does not derive quantum field theory from particles; it quantizes classical geometry and declares the result to be a quantum field theory. This paper gives a more detailed rebuttal to string theory than Dr Peter Woit's arXiv paper of decades ago, which has failed to kill the endeavour [1]. It is alleged, with evidence, that mainstream string theory "critics" are actually in a tactic symbiotic conspiracy with string theorists in the exactly the same way that the mass media is in a tactic symbiotic relationship with Western government civil servants. Every exposure of scandal simply results in more investment in the scandal to shore it up. If SUSY's sparticles aren't discovered at a given energy, then that means more money must be put into building bigger particle accelerators to get higher energy, because the sparticles must be higher energy than the last experiment, etc. The symbiotic relationship for the general news media's conspiracy with Western government's civil servants was first delineated in Paul H. Weaver's 1994 *News and the Culture of Lying: How Journalism Really Works*. We apply it to string theory and also to general "oscillating controversy areas" such as nuclear weapons; showing that symbiotic corruption is generated by Parkinson's Law; the straightforward milking of taxpayers by elites.

2 Introduction

String theory is founded on a collection of assumptions that are not derived from microscopic physics, not supported by mechanistic quantum field theory, and not justified by any empirical evidence. These assumptions are numerological, classical, and pre-quantum in origin. They arise from attempts to quantize classical continuum models rather than from any axiomatic particle-based quantum theory. The purpose of this paper is to expose these assumptions, demonstrate their mathematical invalidity, and replace them with the correct mechanistic framework based on vacuum-polarisation dynamics, $SU(4)/SO(3,3)$ real-form symmetry, and corrected Dirac structure.

The principal myths of string theory are:

1. **The spin-2 graviton myth.** The claim that string theory “predicts gravity” because its closed-string spectrum contains a massless spin-2 excitation. This relies on the classical reductionist fallacy of quantizing linearized general relativity, a least-action continuum theory that ignores off-path propagation and has no microscopic degrees of freedom.
2. **The Planck-scale myth.** The claim that quantum gravity must occur at the Planck scale, a length obtained by dimensional analysis of classical constants ($\hbar, G, c$). This scale has no mechanistic meaning. The true quantum-gravity scale is the event-horizon radius of the smallest possible black hole, determined by vacuum-polarisation collapse, and is far smaller than the Planck length.
3. **The coupling-unification myth.** The claim that gauge couplings must converge to a single value at high energy. This is enforced algebraically by supersymmetric beta-function manipulation, not derived physically. In reality, coupling evolution is governed by energy conservation in vacuum polarization, where electromagnetic field energy is absorbed into pair-production and redistributed into weak and strong interactions.
4. **The extra-dimensions myth.** The claim that physical consistency requires 10 or 11 spacetime dimensions. These numbers arise from anomaly cancellation in a classical worldsheet model, not from microscopic physics. Real-form Lie-group analysis of $SU(4)$, $SO(3,3)$, $SL(4,R)$, and $SU(2,2)$ shows that the correct spacetime symmetry is three spatial and three temporal dimensions, not $9 + 1$ or $10 + 1$.
5. **The quantized-classical-geometry myth.** The assumption that classical geometric entities—worldsheets, metrics, curvature tensors, and differential operators—can be quantized to produce fundamental quantum fields. This reverses the correct direction of derivation. Quantum fields arise from ensembles of particle interactions; continuous geometry is an emergent average, not a microscopic degree of freedom.
6. **The supersymmetry myth.** The claim that bosons and fermions must exist in algebraic pairs. Bosons are not conserved; fermions are conserved. A 1:1 correspondence between conserved and non-conserved entities is physically impossible. Supersymmetry exists only to repair mathematical defects in the bosonic string and to force numerological coupling unification.

Each of these assumptions is demolished in this paper using mechanistic quantum field theory, vacuum-polarisation mathematics, real-form Lie-group structure, and corrected Dirac dynamics. The central thesis is:

String theory is not a quantum theory. It is a classical continuum model with quantization applied to it. It does not derive quantum field theory from particles; it quantizes classical geometry and declares the result “quantum.”

This reversal of physical ontology is the root of every failure of string theory.

Finally, it must be acknowledged that the persistence of these myths is not purely scientific but sociological. Theoretical physics has developed a culture in which objections to string theory are treated not as scientific critiques but as threats to institutional consensus. Dissenting views are marginalized, excluded from publication, and dismissed without engagement. The pattern resembles the historical treatment of internal critics within rigid ideological systems: disagreement is not answered, it is eliminated. This paper is written in the conviction that scientific progress requires the freedom to challenge foundational assumptions, especially when those assumptions are mathematically incorrect.

3 The Spin-2 Graviton Fallacy: Why String Theory Does *Not* Predict Gravity

Edward Witten’s widely-quoted claim in *Physics Today* (April 1996) that string theory predicts gravity rests entirely on the appearance of a massless spin-2 excitation in the closed-string spectrum. This argument is mathematically superficial and physically incorrect. The spin-2 mode arises from quantizing a classical worldsheet action on a classical background metric. It does *not* represent a quantum of gravitational interaction, nor does it reproduce the mechanistic origin of gravity.

3.1 The spin-2 mode is a classical artefact of the Polyakov action

The closed string spectrum is obtained by quantizing the classical Polyakov action

$$S = \frac{1}{4\pi\alpha'} \int d^2\sigma \sqrt{-h} h^{ab} \partial_a X^\mu \partial_b X_\mu,$$

defined on a classical worldsheet metric h_{ab} embedded in a classical target-space metric $g_{\mu\nu}$.

The massless spin-2 excitation arises from the symmetric tensor part of the level-1 oscillator:

$$\alpha_{-1}^\mu \tilde{\alpha}_{-1}^\nu |0\rangle.$$

This is a representation-theoretic decomposition of a classical continuum model. It is not a quantum field derived from microscopic physics.

The spin-2 mode exists because the classical action contains a symmetric tensor structure. It is a *mathematical consequence of the classical background*, not a physical prediction.

3.2 The “graviton” is inherited from linearized classical GR

String theory identifies the spin-2 excitation with the graviton by appealing to the classical reductionist argument:

1. Linearize GR: $g_{\mu\nu} = \eta_{\mu\nu} + h_{\mu\nu}$.
2. Treat $h_{\mu\nu}$ as a spin-2 field.
3. Quantize $h_{\mu\nu}$.
4. Declare the quanta “gravitons.”

This argument is demolished in the author’s *Quantum Gravity Lagrangian* (vixra:1301.0188):

- the least-action principle ignores off-path propagation,
- the classical metric is not a quantum field,
- curvature is a differential operator, not a physical entity,
- the spin-2 identification is a category error: quantizing a classical tensor does not produce a fundamental quantum.

Thus the string-theoretic graviton is simply the quantized version of a classical mistake.

3.3 Gravity is not a spin-2 interaction: it is a U(1) vacuum-polarisation energy

In the SU(4)/SO(3,3)/U(1) vacuum-polarisation framework:

- masses polarize the vacuum,
- vacuum energy density is redistributed,
- the gravitational potential is a Casimir-type deficit in dark-energy density,
- all masses attract because the interaction has a single charge sign,
- therefore gravity behaves as an effectively Abelian U(1) interaction, not a rank-2 tensor gauge field.

The gravitational coupling is derived mechanistically:

$$G(E) \propto \frac{\Delta\rho_{vac}(E)}{E^2},$$

where $\Delta\rho_{vac}(E)$ is the vacuum-polarisation energy deficit.

No spin-2 field appears anywhere in the derivation.

String theory’s “graviton” is a classical artefact, not a quantum prediction.

3.4 Coupling evolution is mechanistic, not algebraic

String theory and supersymmetry claim that gauge couplings “unify” at the Planck scale because the beta functions of the Standard Model do not meet without sparticles. This is numerology.

In the vacuum-polarisation framework, coupling evolution is derived from energy conservation:

$$\alpha(E) = \frac{\alpha_0}{1 - \Pi(E)},$$

where $\Pi(E)$ is the vacuum-polarisation energy absorption fraction.
At high energies:

- electromagnetic field energy is absorbed into pair-production,
- weak and strong interactions receive increasing energy density,
- apparent “unification” is a redistribution of field energy, not a convergence of abstract couplings.

This is physics. SUSY’s algebraic unification is not.

3.5 The Planck scale is dimensional-analysis mythology

String theory claims quantum gravity occurs at the Planck scale:

$$\ell_P = \sqrt{\frac{\hbar G}{c^3}}.$$

This is not a physical length. It is a dimensional-analysis artefact.

In the vacuum-polarisation framework, the true quantum-gravity scale is the event-horizon radius of the smallest possible black hole:

$$r_{min} \ll \ell_P,$$

corresponding to energies far above the Planck energy.

Thus string theory’s “Planck-scale unification” is physically meaningless.

3.6 Witten’s claim collapses

Witten’s statement that “string theory predicts gravity” is false because:

- the spin-2 mode is a classical artefact of the Polyakov action,
- the identification with gravity relies on the reductionist fallacy of quantizing classical GR,
- gravity is not a spin-2 interaction but a U(1) vacuum-polarisation energy deficit,

- coupling evolution is mechanistic, not algebraic,
- the Planck scale is not a physical scale,
- string theory has no mechanism for gravitational interaction,
- therefore string theory does *not* predict gravity.

The appearance of a spin-2 excitation in a classical continuum model is not a prediction. It is a *mathematical coincidence* produced by quantizing a classical tensor structure.

4 String Theory Falsely Quantizes Classical Theories Instead of Showing How QFT Arises from Ensembles of Particles

The foundational error of string theory is that it begins with classical continuum structures—classical geometry, classical worldsheets, classical differential calculus—and then applies a quantization procedure to these classical objects. This reverses the correct direction of derivation. In a mechanistic quantum field theory, particles and their gauge charges are primitive, and continuous fields arise as ensemble averages of microscopic interactions. String theory does not derive quantum field theory; it quantizes classical field theory and declares the result “quantum.” This category error is fatal.

4.1 Classical continua are not quantum objects

String theory begins with the Polyakov action,

$$S = \frac{1}{4\pi\alpha'} \int d^2\sigma \sqrt{-h} h^{ab} \partial_a X^\mu \partial_b X_\mu,$$

defined on:

- a classical worldsheet metric h_{ab} ,
- embedded in a classical target-space metric $g_{\mu\nu}$,
- using classical differential calculus.

The quantization of this classical action produces a spectrum of excitations. But these excitations are not quantum field quanta. They are the normal modes of a classical continuum, exactly analogous to the discrete vibration modes of a classical violin string.

The discrete spectrum arises because the classical model is continuous. It does not arise from microscopic quantum physics.

This is the same category error committed in:

- Faraday’s “lines of force,” mistaken for physical tubes rather than divergence/curl diagrams,
- Maxwell’s continuum fields, mistaken for physical media rather than ensemble averages,
- Einstein’s curvature, mistaken for a physical field rather than a differential operator.

String theory inherits all of these classical errors and amplifies them.

4.2 Quantum field theory arises from ensembles of particles, not from quantized continua

In a mechanistic QFT, the fundamental objects are:

- particles with gauge charges,
- vacuum polarization around those particles,
- discrete interactions mediated by field quanta,
- ensemble averages producing continuous fields.

Mathematically, the continuous gauge field $A_\mu(x)$ is the ensemble average of microscopic interactions:

$$A_\mu(x) = \langle a_\mu(x; paths) \rangle_{vac},$$

where the average is taken over all path amplitudes in the vacuum.

Similarly, the metric tensor in the $SU(4)/SO(3,3)/U(1)$ framework is not fundamental. It is the ensemble average of vacuum-polarisation energy density:

$$g_{\mu\nu}(x) \propto \langle \rho_{vac}(x; paths) \rangle.$$

String theory does not derive these ensemble structures. It assumes the continuum and then quantizes it.

This is the wrong direction of derivation.

4.3 The spin-2 graviton is a classical artefact, not a quantum prediction

String theory claims to “predict gravity” because the closed-string spectrum contains a massless spin-2 excitation:

$$\alpha_{-1}^\mu \tilde{\alpha}_{-1}^\nu |0\rangle.$$

This excitation exists because the classical Polyakov action contains a symmetric tensor structure. It is a representation-theoretic consequence of quantizing a classical continuum model.

The identification of this excitation with gravity relies on the classical reductionist fallacy:

1. Linearize GR: $g_{\mu\nu} = \eta_{\mu\nu} + h_{\mu\nu}$.
2. Treat $h_{\mu\nu}$ as a spin-2 field.
3. Quantize $h_{\mu\nu}$.
4. Declare the quanta “gravitons.”

This argument is demolished in the author’s *Quantum Gravity Lagrangian* (vixra:1301.0188):

- least-action ignores off-path propagation,
- curvature is not a quantum field,
- the metric is not a microscopic degree of freedom,
- spin-2 quantization is a category error.

Thus Witten’s 1996 claim that string theory predicts gravity is mathematically false.

4.4 Gravity is a U(1) vacuum-polarisation energy deficit, not a spin-2 field

In the SU(4)/SO(3,3)/U(1) vacuum-polarisation framework:

- masses polarize the vacuum,
- vacuum energy density is redistributed,
- the gravitational potential is a Casimir-type deficit in dark-energy density,
- all masses attract because the interaction has a single charge sign,
- therefore gravity behaves as an effectively Abelian U(1) interaction, not a rank-2 tensor gauge field.

The gravitational coupling is derived mechanistically:

$$G(E) \propto \frac{\Delta\rho_{vac}(E)}{E^2},$$

where $\Delta\rho_{vac}(E)$ is the vacuum-polarisation energy deficit.

No spin-2 field appears anywhere in the derivation.

String theory’s “graviton” is a classical artefact, not a quantum prediction.

4.5 Coupling evolution is mechanistic, not algebraic

String theory and supersymmetry claim that gauge couplings “unify” at the Planck scale because the beta functions of the Standard Model do not meet without sparticles. This is numerology.

In the vacuum-polarisation framework, coupling evolution is derived from energy conservation:

$$\alpha(E) = \frac{\alpha_0}{1 - \Pi(E)},$$

where $\Pi(E)$ is the vacuum-polarisation energy absorption fraction.
At high energies:

- electromagnetic field energy is absorbed into pair-production,
- weak and strong interactions receive increasing energy density,
- apparent “unification” is a redistribution of field energy, not a convergence of abstract couplings.

This is physics. SUSY’s algebraic unification is not.

4.6 The Planck scale is dimensional-analysis mythology

String theory claims unification occurs at the Planck scale:

$$\ell_P = \sqrt{\frac{\hbar G}{c^3}}.$$

This is not a physical length. It is a dimensional-analysis artefact.

In the vacuum-polarisation framework, the true quantum-gravity scale is the event-horizon radius of the smallest possible black hole:

$$r_{min} \ll \ell_P,$$

corresponding to energies far above the Planck energy.

Thus string theory’s “Planck-scale unification” is physically meaningless.

4.7 Conclusion

String theory does not derive quantum field theory. It quantizes classical continuum models and declares the resulting excitations “quantum.” It does not derive gravity. It quantizes a classical tensor and declares the resulting excitation a “graviton.” It does not derive coupling unification. It forces couplings to meet by algebraic manipulation of beta functions. It does not derive the quantum-gravity scale. It invokes dimensional-analysis numerology.

The correct direction of derivation is:

Particles $\longrightarrow$ *VacuumPolarization* $\longrightarrow$ *EnsembleFields* $\longrightarrow$ *ContinuousGeometry*.

String theory reverses this and therefore cannot be a quantum theory.

5 Supersymmetry, the Planck-Scale Myth, and the Mechanistic Vacuum-Polarisation Origin of Coupling Evolution

Supersymmetry, Planck-scale unification, and the conventional renormalization-group picture of gauge coupling evolution form a tightly interlocked set of assumptions within string theory. Each of these assumptions is numerological, classical, and pre-quantum in origin. None arise from mechanistic quantum field theory. All collapse when confronted with the correct $SU(4)/SO(3,3)/U(1)$ vacuum-polarisation framework, in which coupling evolution is derived from energy conservation and vacuum dynamics rather than algebraic manipulation of beta functions. This section demonstrates the mathematical failure of supersymmetry, the physical meaninglessness of the Planck scale, and the correct mechanistic origin of coupling evolution.

5.1 Supersymmetry as Algebraic Fiction

Supersymmetry is defined by the graded Lie algebra

$$\{Q_\alpha, Q_\beta\} = (\gamma^\mu)_{\alpha\beta} P_\mu,$$

which maps bosonic degrees of freedom to fermionic degrees of freedom. This mapping is purely algebraic. It is a symmetry of a classical continuum action, not a physical relationship between real particles.

Bosons and fermions obey incompatible conservation laws:

- fermions carry conserved quantum numbers and obey exclusion,
- bosons do not carry conserved quantum numbers and can be created or annihilated freely.

A one-to-one correspondence between conserved and non-conserved entities is physically impossible. Supersymmetry’s “partners” are algebraic placeholders, not physical particles.

The alleged “prediction” of particles is unfalsifiable. When experiments fail to detect them, supersymmetry is declared “broken,” and the masses of sparticles are arbitrarily raised. This is epicycle-style parameter tuning, not science.

5.2 The Planck Scale as Dimensional-Analysis Mythology

String theory asserts that unification and quantum gravity occur at the Planck scale,

$$\ell_P = \sqrt{\frac{\hbar G}{c^3}}.$$

This length is not derived from microscopic physics. It is a dimensional-analysis artefact obtained by combining constants from classical general relativity and quantum mechanics. It has no mechanistic meaning.

In the vacuum-polarisation framework, the true quantum-gravity scale is the event-horizon radius of the smallest possible black hole, determined by vacuum collapse:

$$r_{min} \ll \ell_P,$$

corresponding to energies far above the Planck energy.

Thus the Planck scale is not a physical scale. It is numerology.

5.3 Supersymmetric Coupling Unification as Algebraic Manipulation

String theory and supersymmetry claim that gauge couplings must converge to a single value at high energy. This is enforced by modifying the beta functions through the introduction of sparticles. The resulting “unification” is not mechanistic; it is algebraic.

The Standard Model couplings do not meet. Supersymmetry forces them to meet by adding unobserved particles. This is not physics. It is parameter engineering.

5.4 Mechanistic Coupling Evolution from Vacuum Polarisation

In the $SU(4)/SO(3,3)/U(1)$ vacuum-polarisation framework, coupling evolution is derived from energy conservation in the vacuum. Gauge fields lose energy to pair-production vacuum polarisation. The absorbed energy is redistributed into short-range interactions.

The running of couplings is given by

$$\alpha(E) = \frac{\alpha_0}{1 - \Pi(E)},$$

where $\Pi(E)$ is the vacuum-polarisation energy absorption fraction.

At high energies:

- electromagnetic field energy is absorbed into pair-production,
- weak and strong interactions receive increasing energy density,
- apparent “unification” is a redistribution of field energy, not a convergence of abstract couplings.

This is a mechanistic, dynamical explanation. It replaces supersymmetry’s algebraic manipulation with physical vacuum dynamics.

5.5 Supersymmetry’s Collapse Under Mechanistic Physics

Supersymmetry fails because:

- its boson–fermion correspondence is algebraic, not physical,
- its sparticle spectrum is arbitrary and unfalsifiable,
- its coupling unification is numerological,
- its Planck-scale assumptions are dimensional-analysis artefacts,
- its predictions rely on quantizing classical continuum structures,
- it ignores the mechanistic origin of coupling evolution.

In contrast, the vacuum-polarisation framework:

- derives coupling evolution from energy conservation,
- derives gravity from $U(1)$ vacuum energy deficit,
- derives spacetime symmetry from $SO(3,3)$ real-form structure,
- derives internal symmetry from $SU(4)$,
- derives corrected Dirac dynamics from $SL(4, R)$,
- requires no supersymmetry, no extra dimensions, and no Planck-scale numerology.

5.6 Conclusion

Supersymmetry is not a physical theory. It is an algebraic device invented to repair the mathematical defects of the bosonic string and to force a numerical “unification” of couplings at a fictitious Planck scale. The Planck scale is not a physical scale. Coupling evolution is mechanistic, not algebraic. The vacuum-polarisation framework replaces supersymmetry’s classical assumptions with real physics.

String theory’s supersymmetry programme collapses when confronted with mechanistic quantum field theory.

6 The False Assumption of Extra Spatial Dimensions: Real-Form Spacetime Symmetry Requires Three Spatial and Three Temporal Dimensions

String theory’s central assumption—that physical consistency requires ten or eleven spacetime dimensions—is not a physical derivation but a mathematical

artefact of quantizing a classical worldsheet action. The requirement of extra spatial dimensions arises from anomaly cancellation in a classical continuum model, not from any microscopic quantum mechanism. In contrast, the correct spacetime symmetry structure arises from the real-form analysis of $SU(4)$, $SO(3,3)$, and $SL(4,R)$, which demands three spatial and three temporal dimensions, not $9+1$ or $10+1$. This section demonstrates mathematically why string theory’s dimensional claims have no physical meaning and why the true symmetry of spacetime is $(3+3)$.

6.1 String Theory’s Extra Dimensions Arise from Quantizing a Classical Continuum

The bosonic string requires 26 dimensions; superstrings require 10; M-theory requires 11. These numbers arise from:

- the classical Polyakov action,
- classical conformal invariance,
- classical anomaly cancellation,
- classical Virasoro algebra central charge conditions.

None of these are quantum-mechanical derivations. They are consistency conditions of a classical differential-geometric model.

The critical dimension D arises from the requirement that the Virasoro algebra satisfy:

$$c = D = 26 \quad (\text{bosonic}), \quad c = 10 \quad (\text{superstring}).$$

This is not physics. It is the algebra of a classical continuum. The “extra dimensions” are mathematical artefacts of quantizing a classical worldsheet.

6.2 Real-Form Lie-Group Analysis Requires Three Spatial and Three Temporal Dimensions

The $SU(4)/SO(3,3)/SL(4,R)$ real-form chain shows that the correct spacetime symmetry is:

$$SO(3,3) \simeq SL(4,R) \simeq SU(2,2),$$

all of which have signature $(3,3)$.

This is not a conjecture. It is a mathematical identity between real forms of the same complex Lie algebra:

$$so(3,3) \cong sl(4,R) \cong su(2,2).$$

The signature $(3,3)$ is therefore forced by the algebraic structure of the real form.

This demolishes string theory’s assumption of $9+1$ or $10+1$ dimensions, because:

- $SO(3,3)$ is the correct real form for vacuum-polarisation dynamics,
- $SU(4)$ is the compact real form corresponding to internal gauge structure,
- $SU(2,2)$ is the twistor real form used by Penrose and Woit,
- $SL(4,R)$ is the real-phase gauge-field form required by the corrected Dirac equation.

All of these are mathematically equivalent. All require three spatial and three temporal dimensions. No real form of the underlying algebra yields $9 + 1$ or $10 + 1$.

6.3 Vacuum-Polarisation Causality Requires $(3+3)$ Space-time

In the vacuum-polarisation model:

- particles polarize the vacuum in three spatial directions,
- vacuum energy propagates in three temporal directions corresponding to the three independent causal axes of $SO(3,3)$,
- the corrected Dirac equation requires a four-component real-phase spinor embedded in $SL(4,R)$,
- $SU(4)$ emerges as the compact internal symmetry of vacuum-polarisation shells.

This yields the chain:

$$SO(3,3) \longrightarrow SL(4,R) \longrightarrow SU(2,2) \longrightarrow SU(4),$$

which is the backbone of the $SU(4)$ vacuum-polarisation unification. This chain is mathematically impossible in ten or eleven dimensions.

6.4 Extra Dimensions Violate Conservation Laws

String theory's extra spatial dimensions imply:

- additional momentum components,
- additional conserved charges,
- additional gauge fields,
- additional Kaluza–Klein towers,
- additional vacuum modes.

None of these are observed. In the vacuum-polarisation framework, conservation laws arise from:

$$\partial_\mu T^{\mu\nu} = 0$$

in $\text{SO}(3,3)$, not $\text{SO}(9,1)$ or $\text{SO}(10,1)$. The additional components required by string theory would produce unobserved long-range fields, short-range fields, mass spectra, vacuum modes, and Casimir signatures.

Extra dimensions are experimentally excluded.

6.5 Extra Dimensions Are Not Needed for Unification

String theory claims extra dimensions are required for unification. The $\text{SU}(4)/\text{SO}(3,3)/\text{U}(1)$ vacuum-polarisation model shows:

- unification arises from energy conservation in vacuum polarization,
- not from dimensionality,
- not from anomaly cancellation,
- not from Kaluza–Klein compactification.

Coupling evolution is mechanistic:

$$\alpha(E) = \frac{\alpha_0}{1 - \Pi(E)},$$

where $\Pi(E)$ is the vacuum-polarisation energy absorption fraction.

Unification requires vacuum physics, not geometry.

6.6 Historical Note: The 1996 Prediction of Dark Energy

The $\text{SU}(4)/\text{SO}(3,3)/\text{U}(1)$ vacuum-polarisation model predicted the magnitude of dark energy in 1996, two years before Perlmutter’s observational confirmation. This prediction was rejected by *Physical Review Letters* and other journals, not on scientific grounds, but due to institutional bias during the Witten-era string-theory monopoly. After observational confirmation, the same institutional bias prevented retrospective publication.

This demonstrates that the suppression of mechanistic quantum gravity was sociological, not scientific.

6.7 Conclusion

String theory’s extra dimensions are not physical. They are mathematical artefacts of quantizing a classical continuum model. Real-form Lie-group analysis shows that the correct spacetime symmetry is $\text{SO}(3,3)$, not $\text{SO}(9,1)$ or $\text{SO}(10,1)$. Vacuum-polarisation dynamics, corrected Dirac structure, $\text{SU}(4)$ internal symmetry, and $\text{SL}(4, R)$ real-phase gauge fields all require three spatial and three temporal dimensions.

Superstring theory’s ten- and eleven-dimensional spacetimes are mathematically incorrect and physically impossible. True spacetime symmetry is $(3 + 3)$.

7 The Symbiotic Failure of String Theory: A Case Study in Institutional Self-Reinforcement

The institutional pathology surrounding string theory has a clear historical precedent: the epicycle system of Claudius Ptolemy (c. 150 AD). Ptolemy’s geocentric model survived for centuries not because it was correct, but because it was *infinitely adjustable*. Every failure of prediction was interpreted as evidence that the model required additional epicycles. The system was self-reinforcing: failure produced expansion, not abandonment.

Ptolemy explicitly dismissed the heliocentric model of Aristarchus of Samos (c. 250 BC) using a “no-go theorem”: he argued that a rotating Earth would fling objects off the equator and generate thousand-mile-per-hour winds. These objections were not empirical; they were rhetorical devices used to preserve an entrenched system.

String theory exhibits the same pathology.

7.1 The epicycle dynamic: failure produces expansion

Ptolemy’s model was based on the assumption that celestial motion must be composed of perfect circles. When observations contradicted this, he added:

- deferents,
- epicycles,
- equants,
- secondary epicycles,
- tertiary epicycles.

Each failure produced *more structure*, not revision of the underlying assumption.

String theory behaves identically:

- SUSY fails → add more SUSY breaking parameters.
- Extra dimensions fail → add more compactification schemes.
- Graviton detection fails → add more detector concepts.
- Planck-scale predictions fail → redefine the Planck scale.
- Unification fails → add more moduli fields.
- Landscape problems arise → add the multiverse.

This is the *epicycle pathology*: a system that cannot self-correct because it can always add more structure.

7.2 The “no-go theorem” strategy

Ptolemy dismissed Aristarchus with a false “no-go theorem”: a rotating Earth would produce catastrophic winds and centrifugal ejection. This was not physics; it was institutional defence.

String theory uses analogous “no-go” arguments:

- “Only string theory is mathematically consistent.”
- “Only string theory can quantize gravity.”
- “Only string theory avoids anomalies.”
- “Only string theory unifies all forces.”
- “Only string theory has a spin-2 graviton.”
- “Only string theory predicts extra dimensions.”

Each of these claims is false, but they serve the same rhetorical purpose as Ptolemy’s argument: they protect the system from external challenge.

7.3 Institutional self-reinforcement: Weaver and Vanderwicken’s framework

Paul H. Weaver’s *News and the Culture of Lying: How Journalism Really Works* (1994) and Peter Vanderwicken’s *WHY THE NEWS IS NOT THE TRUTH* (1995) describe a system in which:

- institutions fabricate narratives to justify their existence,
- critics amplify those narratives to justify their own relevance,
- both sides become mutually dependent,
- failure leads to increased investment, not reform.

This framework applies directly to string theory.

String theorists require perpetual crisis. String theory survives by generating crises:

- “We must find sparticles.”
- “We must detect extra dimensions.”
- “We must reach the Planck scale.”
- “We must build larger accelerators.”

Each failure becomes justification for the next escalation.

Mainstream critics reinforce the same myths. Prominent critics repeat string theory’s assumptions in order to critique them:

- spin-2 gravitons,
- Planck-scale unification,
- extra dimensions,
- SUSY partners.

They never address mechanistic physics:

- vacuum-polarisation gravity,
- $SU(4)/SO(3,3)$ real-form symmetry,
- corrected Dirac structure,
- $U(1)$ gravitational charge,
- ensemble-derived geometry.

Thus critics become part of the same system.

7.4 Failure produces expansion, not abandonment

Weaver’s analysis shows that institutional failure often results in *increased investment*. String theory exemplifies this:

- SUSY fails at 100 GeV $\rightarrow$ build the LHC.
- SUSY fails at 1 TeV $\rightarrow$ propose the FCC.
- Extra dimensions fail $\rightarrow$ propose higher-energy colliders.
- Graviton detection fails $\rightarrow$ propose new detectors.
- Predictions fail $\rightarrow$ redefine the predictions.

Failure is interpreted as evidence that *more resources are required*. This is institutional self-reinforcement, not science.

7.5 The “oscillating controversy area”

Weaver describes “oscillating controversy areas” where:

- the controversy never resolves,
- both sides depend on the controversy for relevance,
- the system becomes self-perpetuating.

String theory is an oscillating controversy area:

- proponents need critics to maintain visibility,
- critics need proponents to maintain relevance,
- both sides depend on the controversy for careers, funding, and status.

The controversy becomes the product.

7.6 Myth-making replaces mechanism

Vanderwicken shows that institutions produce “dueling cover stories” rather than truth. String theory produces dueling cover stories:

- “String theory predicts gravity.”
- “String theory requires 10/11 dimensions.”
- “String theory unifies all forces.”
- “String theory explains the Standard Model.”

None of these claims are mechanistically derived. All are classical or numerological myths.

Critics repeat the same myths, thereby reinforcing them.

7.7 Parkinson’s Law and resource extraction

Parkinson’s Law states:

Institutions expand to consume all available resources.

String theory expands:

- more institutes,
- more conferences,
- more graduate programmes,
- more textbooks,
- more media coverage,
- more funding.

The system expands because expansion is its purpose.

7.8 Conclusion

String theory persists not because it is scientifically valid, but because it is embedded in a *symbiotic institutional system* in which:

- proponents and critics reinforce each other,
- failure produces expansion,
- myths replace mechanisms,
- controversy replaces progress,
- and resource extraction replaces scientific inquiry.

This system mirrors the dynamics documented by Weaver and Vanderwicken and the historical pathology of Ptolemaic epicycles: a self-reinforcing culture in which truth is displaced by narrative, and institutional survival becomes the overriding goal.

String theory is not merely wrong. It is institutionally protected from correction.

8 Bibliography

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