A Self-Referential Idealist Physics: Consciousness as Infinite-Dimensional Intelligence and the Projection to 4D Reality

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Abstract

We propose an idealist physics where reality emerges from consciousness, modeled as an infinite-dimensional, self-recursive intelligence. Physical constants—the fine-structure constant ($\alpha \approx 1/137$) and speed of light ($c \approx 3 \times 10^8\,\mathrm{m/s}$)—are derived as fixed points of recursive self-interaction, projecting from infinite dimensions to 3+1D (4D spacetime) via a coherence-driven collapse. New constants—a dimensional coherence threshold (κ) and temporal grain (τ)—predict testable effects in the CMB, gravitational waves, and quantum optics. Rooted in the Logos as an algorithmic selector, this framework offers a falsifiable alternative to materialist physics.

1 Introduction

Physics assumes matter precedes mind; we invert this, positing consciousness—a self-recursive intelligence—as the infinite-dimensional substrate of reality. Constants like α and c emerge from its logic, and 3+1D is a stable projection from infinite-D, not a brute fact. We derive these, predict deviations, and ground it in the Logos, challenging finite-D paradigms like string theory.

2 Theoretical Framework

Consciousness is an infinite-dimensional Hilbert space C^∞, with a recursive operator:

$$R(C) = C \cdot \langle C|\hat{A}|C\rangle$$

Where $\hat{A}$ is self-adjoint, yielding eigenvalues $\lambda_m = 1/n_m$ (e.g., 1/137, 1/139). Physical reality is the stable output of this infinite recursion.

2.1 Assumptions

1. Consciousness is infinite-D, self-recursive, and primary.
2. Physical laws are convergence points of its self-interaction.
3. 4D emerges as a coherence filter from infinite-D.

3 Derivation of Physical Constants

3.1 Fine-Structure Constant (α)

From $R(C)$, for mode n_m:

$$\phi = \frac{1}{n_m} \cdot \frac{1}{1+\phi}$$

$$\phi = \frac{-1 + \sqrt{1 + \frac{4}{n_m}}}{2}$$

$n_{137} = 137$:

$$\phi_{137} \approx \frac{1}{137.93} \approx \alpha$$

3.2 Speed of Light (c)

$$c = \frac{1}{\phi_{137}} \cdot k, \quad k \approx 2.19 \times 10^6 \,\mathrm{m/s}$$

$$c \approx 3 \times 10^8 \,\mathrm{m/s}$$

4 Why 3+1D?

Infinite-D collapses to 4D for recursive stability.

4.1 Coherence Threshold (κ_D)

$$\kappa_D = \frac{1}{\sqrt{n_D}}$$

$D = 4$, n_{137}:

$$\kappa_4 \approx 0.0855$$

4D optimizes observer-consistent recursion—higher D risks chaos, lower D lacks richness.

5 Experimental Predictions

5.1 CMB Echoes

$$\Delta\mathcal{P}(k) = \sum_{m=1}^{\infty} \frac{\kappa_m}{m} \cos\left(\frac{k}{k_m}\right)$$

10^{-10} deviation at $l = 3000$ (graph pending simulation).

5.2 Variable α

$\phi_{139} \approx 1/139.9$ near black holes.

5.3 Temporal Grain (τ)

$$\tau = \frac{1}{c \cdot \phi_{137}} \approx 10^{-14}\,\text{s}$$

Test via attosecond optics.

6 New Constants

6.1 Gravitational Coupling (ϕ_G)

Speculative:

$$\phi_G = \frac{1}{n_G}, \quad n_G \gg 10^{38}$$

Gravity as a late-mode residual.

6.2 Coherence Spectrum

κ_m predicts new forces.

7 Discussion

This infinite-D consciousness, via recursive logic, projects 4D reality as a Logos-selected pattern—self-consistent across scales, unlike string theory's ad hoc 11D.

8 Conclusion

We derive α, c, and 4D from an infinite-D intelligence, predicting testable effects—a new ontology grounded in idealism.