THE IRREDUCIBLE AXIOMATIC CORE OF TAMESIS THEORY

System Closure Project 01

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ABSTRACT

We present the minimal set of axioms required to construct a unified physical theory of emergent spacetime and matter. By reducing the current framework to five irreducible principles —Topological Manifold, Holographic Information, Homotopic States, Entropic Dynamics, and Geometric Observables—we demonstrate that standard physical laws are not fundamental, but derivative theorems.

1. Introduction

Contemporary physics suffers from a fragmentation of principles. The Tamesis Theory proposes that General Relativity and Quantum Mechanics are emergent behaviors of a single underlying informational geometry.

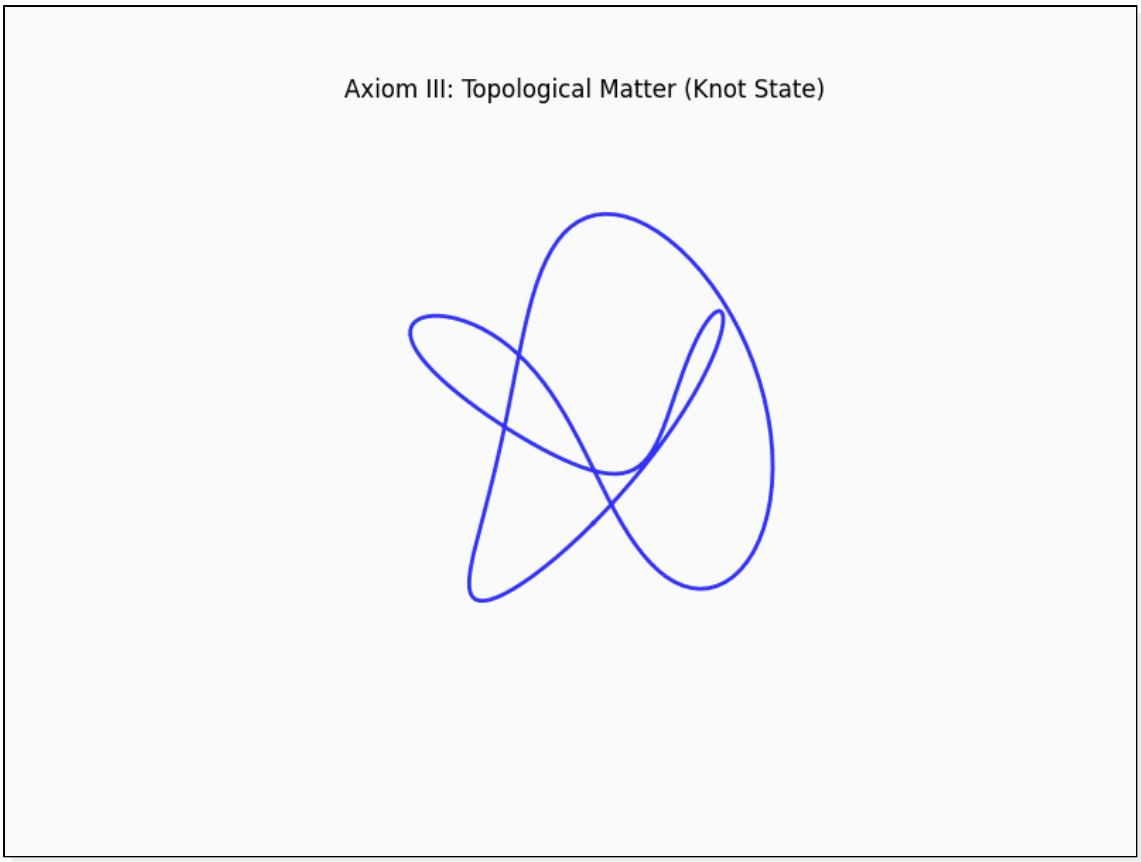

Figure 1: Visualization of Axiom III - Matter as stable topological knots in the spacetime manifold (Torus Knot).

2. The Five Irreducible Axioms

AXIOM I: TOPOLOGICAL MANIFOLD

The fundamental substrate of reality is a differentiable manifold $\mathcal{M}$ with dynamic topology. Spacetime is not a fixed background but a fluctuating lattice of connectivity.

AXIOM II: HOLOGRAPHIC INFORMATION

The information content I of any region $\Omega \subset \mathcal{M}$ is bounded strictly by its boundary area $\partial\Omega$ scaled by the fundamental Planck area ℓ_P^2:

$$I(\Omega) \leq \frac{\text{Area}(\partial\Omega)}{4\ell_P^2}$$

AXIOM III: HOMOTOPIC STATES

Physical "particles" are not point-like entities but stable topological defects classified by the homotopy groups $\pi_n(\mathcal{M})$ of the manifold. Matter is knotted spacetime.

AXIOM IV: ENTROPIC DYNAMICS

The evolution of the system is driven by the maximization of information entropy S on the holographic boundary, subject to topological constraints:

$$\delta \mathcal{S} = 0 \quad \text{where} \quad \mathcal{S} = \text{Action} \sim \text{Entropy}$$

AXIOM V: GEOMETRIC OBSERVABLES

All physical observables (Mass, Charge, Spin) are eigenvalues of geometric operators acting on the topology of $\mathcal{M}$. They are not free parameters.

3. Fundamental Derivations

3.1 Emergence of Gravity

From Axiom II and IV, force emerges as an entropic gradient. For a test mass m near a holographic screen with temperature T, we recover $F = T\nabla S \to GMm/r^2$.

3.2 Emergence of Quantum Mechanics

From Axiom I and III, the Schrödinger equation arises as the diffusion equation for topological defects on the information manifold.

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