Chayut Universe Wave Function

Paper C-4: CUWF Tensor Field Theory

Tensor-Based Deterministic Quantum Dynamics Without Probability

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Tensor-Based Deterministic Quantum Dynamics Without Probability

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Date: 31 December 2025

Abstract

Modern quantum theory still carries a central unresolved assumption: when collapse occurs, the outcome is fundamentally random. Paper C-4 rejects that assumption and develops a full tensor-field formulation of CUWF in which no probabilistic postulate is required. In place of wavefunctions, Born weights, and measurement-induced collapse, CUWF describes the universe as a tensorial wave-curvature engine, where stability, tunneling, entanglement, decoherence, and collapse emerge from geometry rather than chance.

This volume establishes the entropic manifold M = C × M_DOF and introduces three core tensorial objects that form the operational backbone of the C-4 framework:

Stability Tensor T^IJ — the eigen-curvature structure governing collapse, soft modes, and tunneling thresholds.

Entanglement Tensor Ξ^IJ — the cross-sector coherence geometry through which multi-node correlation becomes possible.

Curvature Tensor $R^{I}{}_{j}{}^{KL}$ — the manifold-bending structure through which quantum emergence is expressed geometrically.

These tensors assemble into a closed wave-curvature field-equation system. The resulting structure is formally parallel to a geometry-plus-source law, but it does not require Hilbert-space probability or a measurement axiom:

Geometry: $R^{I}{}_{j} - 1/2\, g^{I}{}_{j} R = \kappa S^{I}{}_{j} + \lambda \Xi^{I}{}_{j}$

Field: $\Box_E E = F(E, T, \Xi)$

Quantum behavior occurs when the minimum eigenvalue of T^{IJ} approaches and crosses zero. This transition is not produced by an observer and is not selected by randomness. It occurs because curvature softens, changes sign, and re-routes the collapse trajectory into another basin.

Collapse ⟶ basin switching

Tunneling ⟶ curvature inversion

Entanglement ⟶ geometric connectivity

No randomness required.

In this formulation, Paper C-4 replaces the main conceptual objects of standard probabilistic quantum mechanics as follows:

ψ ⟶ $\{T, \Xi, R\}$

Born rule ⟶ argmin curvature path

Wavefunction collapse ⟶ deterministic basin selection

The result is a simulation-ready deterministic quantum framework, prepared for numerical solvers, multi-node stability modeling, and future laboratory prediction in the later C-series and D/E experimental volumes.

Keywords

Primary Theory Terms

Tensor Quantum Mechanics

Deterministic Quantum Dynamics

Entropic Manifold Geometry

CUWF (Chayut Universe Wave Function)

Core Mathematical Objects

Stability Tensor

Entanglement Tensor

Curvature Tensor

Entropic Stress Tensor

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Conceptual Replacements for Standard QM

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