



Chayut Universe Wave Function

Paper A-11 : The Nature of Light in the CUWF
Framework

Why the Speed of Light Is Constant, Why It Is Maximal,
and Why Nothing Spacetime-Bound Can Surpass It

Title: Chayut Universe Wave Function (CUWF) Paper A-11 The Nature of Light in the CUWF Framework : Why the Speed of Light Is Constant, Why It Is Maximal, and Why Nothing Spacetime-Bound Can Surpass It

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Abstract

This paper develops CUWF Light Theory as an ontological reinterpretation of light within the Chayut Universe Wave Function (CUWF) framework. It argues that light should not be treated as an isolated primitive object moving through a pre-given spacetime background, but as a coherent propagating disturbance mode arising within the Fundamental Wave Basin (FWB) and becoming operationally legible through the emergent spacetime layer. From this standpoint, the constancy of the speed of light is reinterpreted as an emergent structural invariant of coherence-preserving propagation, while its maximal status is understood as the upper boundary beyond which coherent transmission and causal integrity can no longer remain structurally admissible. The paper further argues that spacetime-bound objects cannot exceed c because the structural burden required to preserve localized object identity rises without bound as the light-boundary is approached. Quantum entanglement is also reconsidered and shown not to violate the light-speed limit, since non-separable correlation is not equivalent to superluminal propagation. On this basis, several foundational paradoxes of light—including wave-particle tension, invariant-speed exceptionalism, the relation

between constancy and maximality, apparent superluminal correlation, and the tension between time-symmetric formal laws and one-way radiation—are reinterpreted as consequences of incomplete ontological layering rather than as contradictions in nature itself. The paper concludes that CUWF does not reject Maxwellian electrodynamics or Einsteinian relativity, but seeks to re-ground them within a deeper wave-entropic ontology in which light, geometry, and causal intelligibility emerge from a common structural basis.

Keywords

CUWF; light; speed of light; coherence-preserving propagation; Fundamental Wave Basin; emergent spacetime; entropic geometry; relativity; entanglement; ontology of light

Terminological Note

For convenience, the interpretive framework developed in this paper will be referred to as “CUWF Light Theory.” Within this terminology, light is treated as a coherent propagating disturbance mode within the Fundamental Wave Basin rather than as an independently primitive entity.

Graphical Abstract (Text Version)

FWB (Fundamental Wave Basin) → coherent disturbance mode → light-like propagation → emergent invariant c → maximal coherence-preserving limit → causal/metric legibility of emergent spacetime. Under this interpretation, light is not a primitive object but a structurally admissible propagation regime, and the major paradoxes of light weaken once propagation, detection, correlation, and geometric reconstruction are assigned to their proper ontological levels.

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Appendix B. Conceptual Mapping Between Standard Physics and CUWF Interpretation

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