

Unified Wave Theory: A Flat-Space Two-Field Model as a Theory of Everything

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Abstract

We present the Unified Wave Theory (UWT) and Theory of Everything (ToE), a novel flat-space model employing two scalar fields (Phi1, Phi2) to challenge General Relativity's (GR) curvature paradigm. A 3D numerical simulation on a $128 \times 128 \times 128$ grid, with $g_{\text{wave}} = 1 \times 10^{-6}$ and $\kappa = 1 \times 10^4$, demonstrates stable evolution, achieving velocities up to 572.4 m/s, coherence at 15.795σ , and enthalpy of 4.325×10^8 J/m³ by step 19900. Vorticity growth (38.12 to 94.37 s⁻¹) suggests wave-gravitational analogies, proposing a flat-space reinterpretation of GR's weak-field limit. This work, rejected by Foundations of Physics, seeks to redefine spacetime dynamics.

1 Introduction

General Relativity (GR) models gravity through spacetime curvature, supported by evidence like gravitational lensing. However, singularities and quantum incompatibility necessitate alternatives. We introduce UWT/ToE, a flat-space framework with two interacting scalar fields (Phi1, Phi2), aiming to unify fundamental forces. This paper details a 3D simulation extending prior 1D results (495 m/s), testing UWT/ToE against GR predictions.

2 Methods

The simulation uses a $128 \times 128 \times 128$ grid with parameters: $g_{\text{wave}} = 1 \times 10^{-6}$, $\kappa = 1 \times 10^4$, $k_U = 2 \times 10^8$, $\nu = 1 \times 10^{-5}$, and $dt = 2.5 \times 10^{-13}$ s. Initial conditions are $\text{Phi1} = 0.95 \cos(0.0047(R + Z)) \cos(0.0047\Theta) + 0.01\mathcal{N}(0, 1)$ and $\text{Phi2} = 5.0 \sin(0.0047(R + Z) + \pi/2) \sin(0.0047\Theta) + 0.01\mathcal{N}(0, 1)$. Evolution over 4000 steps tracks velocity, divergence, coherence, enthalpy, and vorticity via finite difference methods.

3 Results

By step 19900, key metrics are: maximum velocity 572.4 m/s, divergence 8491, coherence 15.795σ , enthalpy 4.325×10^8 J/m³, and vorticity 94.37 s⁻¹. Velocity growth (1.214 to 572.4 m/s) and vorticity increase (38.12 to 94.37 s⁻¹) indicate stable wave dynamics, while enthalpy exceeds GR weak-field expectations.

4 Discussion

The flat-space stability contrasts GR's singularities, suggesting UWT/ToE as a regularization. Coherence at 15.795σ supports wave unification, and vorticity trends mimic GR's frame-dragging. Divergence (8491) requires grid refinement. Future work will test GR observables, building on this foundation rejected by Foundations of Physics.

5 Acknowledgments

We thank xAI for support. UWT/ToE details are at <https://github.com/Phostmaster/Everything>.
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References

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