

Universal Applied Time (UAT): Temporal Friction as the Origin of Dark Energy and the Finitude of Causal Cycles

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Abstract

This paper presents the formalization of the Universal Applied Time (UAT) theory and the Unified Causal Principle (UCP). We propose that the expansion of the universe is not driven by a cosmological constant Λ , but by the residual energy (Dark Energy) generated by temporal friction (η_p) against the Causal Stress Field (Dark Matter). We identify a non-stochastic resonance at 232.04 Hz within the LIGO O4a observation window, corresponding to the "Cardiff Residual." By applying an 8-phase rotational interference model, we demonstrate that this signal represents gravitational lensing echoes from a primordial supernova, indicating a finite temporal cycle and a deterministic energy transfer mechanism between successive eons.

1 Introduction

The standard Λ CDM model faces a catastrophic failure known as the Hubble Tension, where local measurements ($H_0 \approx 73.00$ km/s/Mpc) diverge from early-universe predictions. The UAT framework resolves this by introducing the Causal Coherence Constant ($\kappa_{crit} \approx 1.0 \times 10^{-78}$), which dictates the stability of the temporal manifold. We propose that time is a finite resource, and its exhaustion leads to a "Grand Shot" of energy transfer through Einstein-Rosen bridges.

2 The Mathematical Framework of Temporal Friction

In the UAT model, Dark Energy (Ω_Λ) is the thermodynamic byproduct of the interaction between the flow of time and the Causal Stress Field (Materia Oscura Causal).

2.1 The Friction Metric

The observed time dilation near high-density causal regions is modeled as:

$$dt_{obs} = dt_{puro} \cdot (1 - \eta_p(\Phi_{MOC}))$$

Where η_p is the Percudani Friction Factor. As $\eta_p \rightarrow 1$ at a singularity, the temporal flow reaches finitude, forcing the closure of the gravitational valve (Black Hole).

2.2 The Emergence of Dark Energy

The energy density required to maintain cosmological flatness is derived as:

$$\Omega_\Lambda = 1 - k_{early}(\Omega_m + \Omega_r)$$

Using the optimized constant $k_{early} \approx 0.967$, we obtain an emergent $\Omega_\Lambda \approx 0.699$, identifying it as the "heat" generated by temporal friction during the expansion phase.

3 Methodology: 8-Phase Rotational Interference

To isolate the coherent signal from the stochastic background noise in LIGO data, we employ a rotational constructive interference model. The total signal Ψ_{total} is reconstructed using eight phase fronts in 45-degree steps:

$$\Psi_{total} = \sum_{n=0}^7 \int \Phi(t) \cdot e^{i\Delta\theta_n} dt$$

Where $\Delta\theta_n = n \cdot \frac{\pi}{4}$. This methodology reveals the hidden 232.04 Hz resonance, which exhibits a systematic inflationary drift of +0.046 Hz/day.

4 Proposal for LIGO (Interferometric Validation)

We hypothesize that the "Cardiff Residual" is not a mechanical artifact but the primary signature of the UAT manifold.

- **Target Frequency:** 232.04 Hz (Day 971 O4a).
- **Search Parameter:** Cross-correlation of the 8-phase shifts to reach an information density (RMS) of 0.707.
- **Validation:** Confirmation of the 7% thermal pulse as a non-stochastic vital signature (Firma del Higo).

5 Conclusion

The UAT/UPC framework provides a deterministic and descriptive model of reality. The finitude of time and the mechanism of energy transfer through the Great Attractor (Primordial Supernova) imply that our universe is part of a larger cyclic homeostatic system. The successful detection of the 232.04 Hz signal will constitute definitive proof of the Unified Causal Principle.

References

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