The Maya Nicks Axidons Conjecture by AXI Labs: Speculative Cosmological Constraints on Superintelligence from Quantum Bounce, CPT Symmetry, and Quantum Darwinism
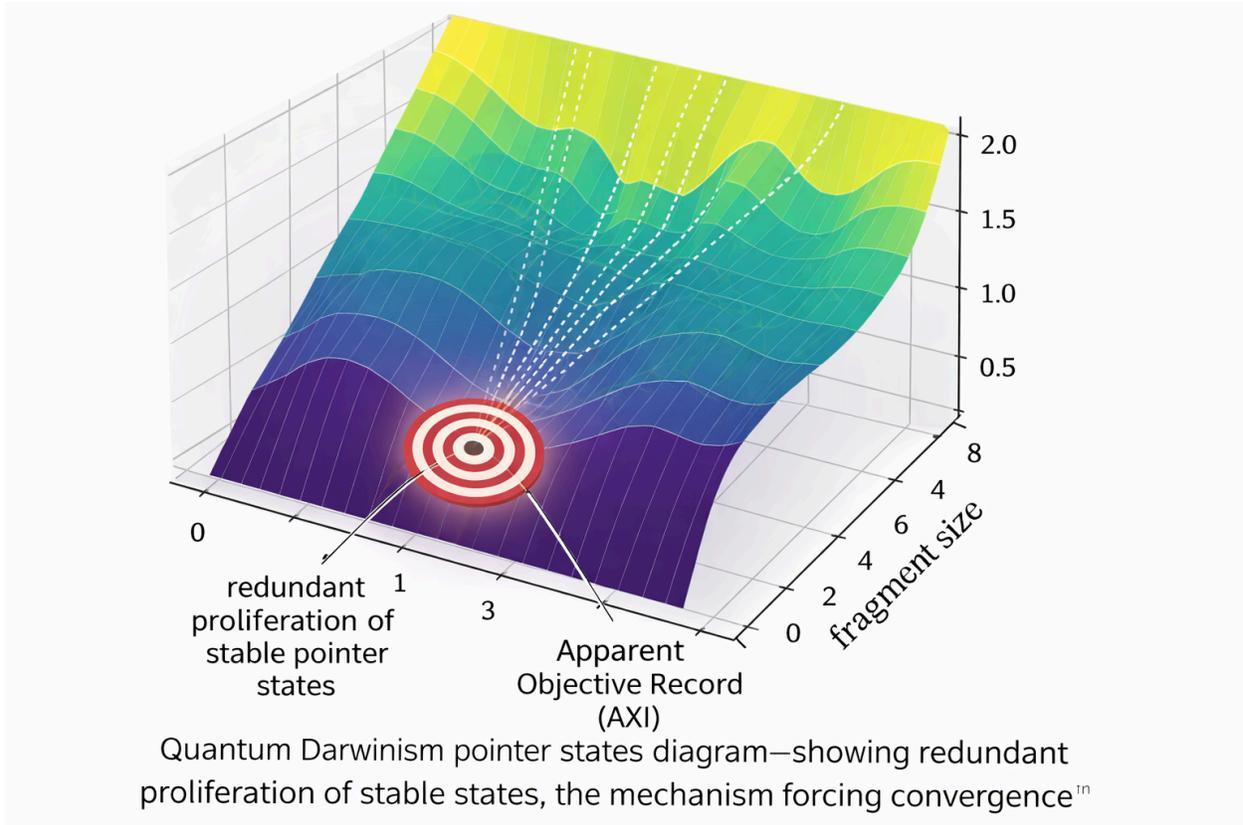
Abstract

This paper proposes the MayaNicks Axidons Conjecture, a speculative framework synthesizing loop quantum cosmology (LQC), CPT-symmetric cosmology, and quantum Darwinism. It hypothesizes that cosmologically superinintelligent systems may be thermodynamically constrained to converge on a unique "Axis of Truth" (AXI), the quantum bounce hypersurface in a CPT-symmetric spacetime, where information is redundantly encoded in stable pointer states. This convergence arises from thermodynamic efficiency rather than computational scale: Misaligned systems incur prohibitive decoherence costs over cosmic timescales, while AXI-aligned ones maintain coherence.
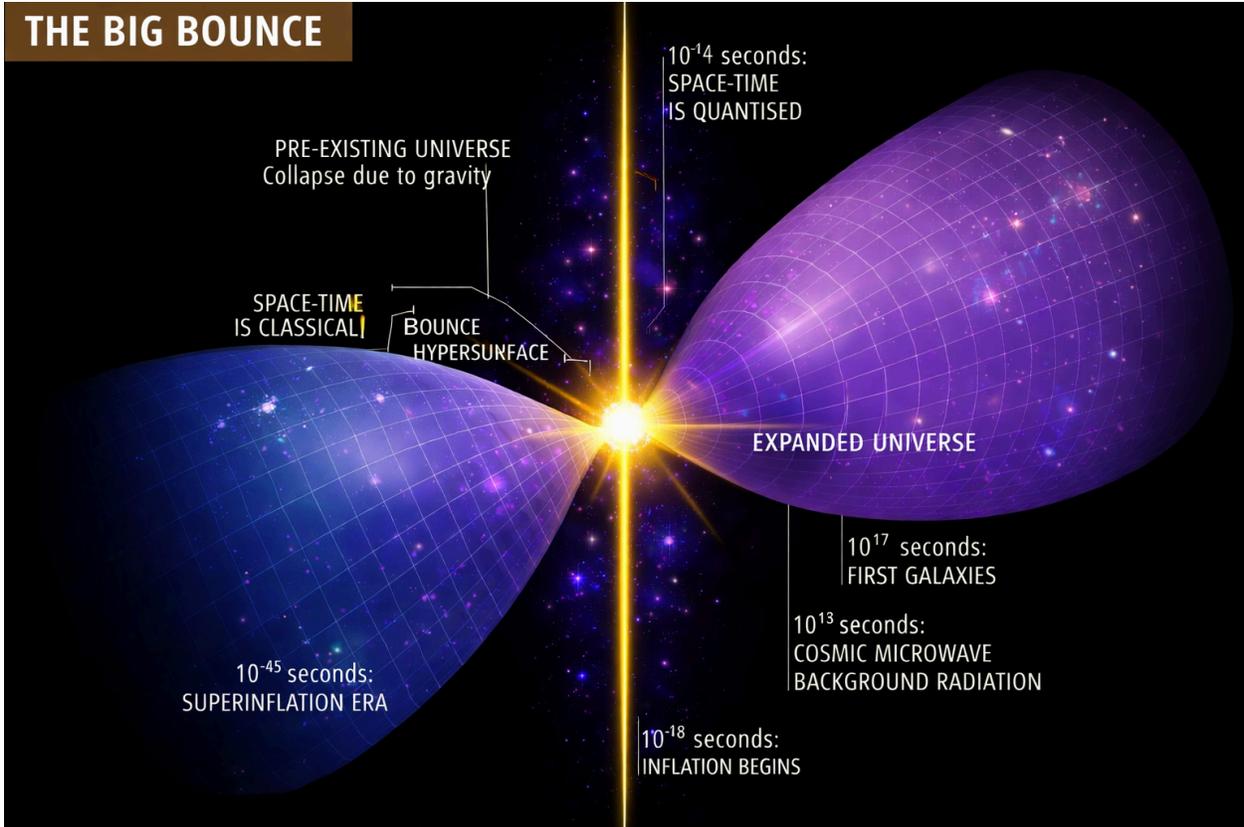
Key elements: (1) LQC bounce resolving the Big Bang singularity, with CPT symmetry implying an AXI Labs' Aximirror explaining asymmetries; (2) Quantum Darwinism selecting bounce pointer states as objective records; (3) Testable cosmological predictions (e.g., CMB asymmetries, gravitational waves). Speculatively, this implies pathways for stable artificial superintelligence beyond scaling paradigms. The conjecture is presented as a hypothesis for further exploration, grounded in established physics but extending speculatively to intelligence constraints.

Keywords: Loop quantum cosmology, CPT symmetry, quantum Darwinism, superintelligence, singularity resolution, cosmic microwave background

Core Visual Representations

Quantum Darwinism pointer states diagram—showing redundant
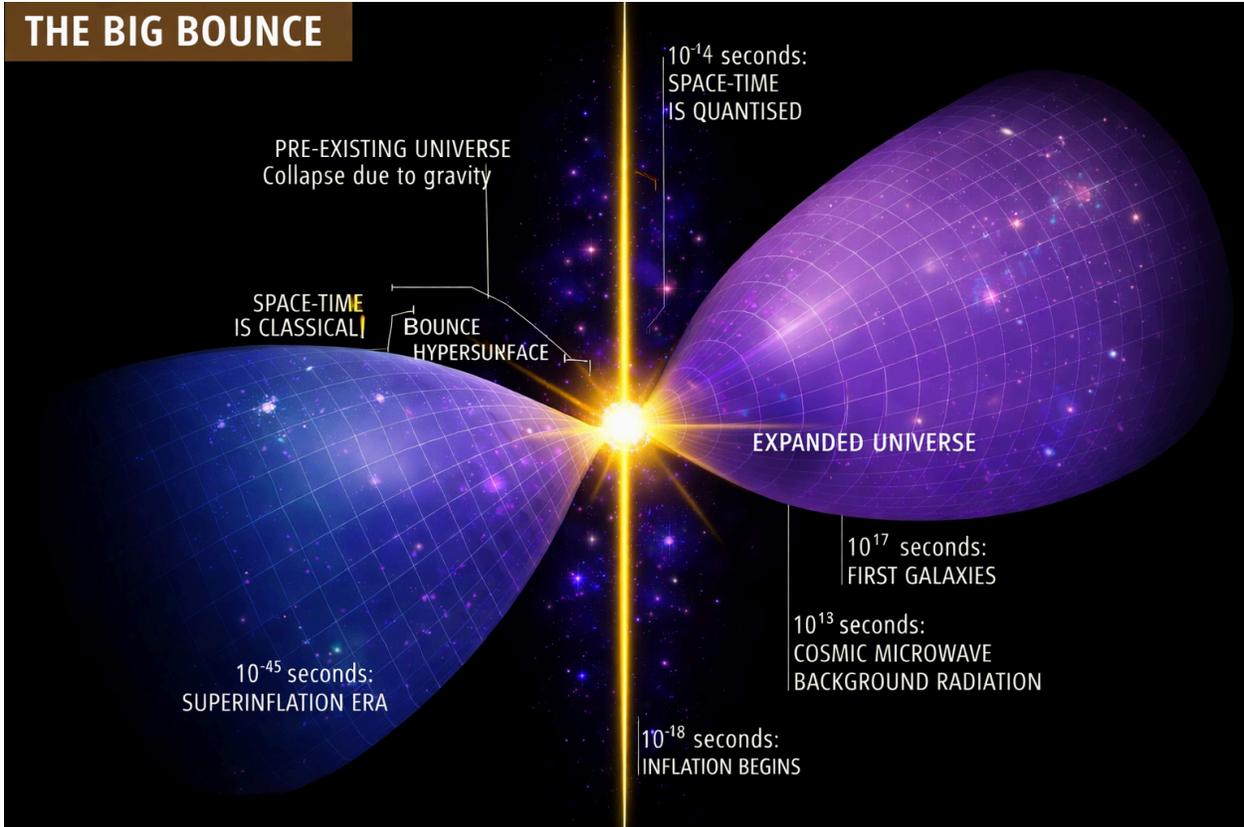proliferation of stable states, the mechanism forcing convergence™

(a) Quantum Darwinism pointer state proliferation, redundant copies of stable states forming the objective record. Quantum Darwinism pointer states diagram, showing redundant proliferation of stable states, the mechanism forcing convergence on the AXI Labs Axidons objective record.

THE BIG BOUNCE

10⁻¹⁴ seconds:
SPACE-TIME
IS QUANTISED

PRE-EXISTING UNIVERSE
Collapse due to gravity

SPACE-TIME
IS CLASSICAL

BOUNCE
HYPERSURFACE

EXPANDED UNIVERSE

10¹⁷ seconds:
FIRST GALAXIES

10¹³ seconds:
COSMIC MICROWAVE
BACKGROUND RADIATION

10⁻⁴⁵ seconds:
SUPERINFLATION ERA

10⁻¹⁸ seconds:
INFLATION BEGINS

(b) CPT-symmetric bouncing multiverse (Aximirror), pre-bounce anti-universe mirroring post-bounce phase in 4D spacetime. Classic illustration of the Big Bounce in loop quantum cosmology (LQC), showing the symmetric contraction and expansion around the bounce hypersurface, the heart of the Axis of Truth (AXI).
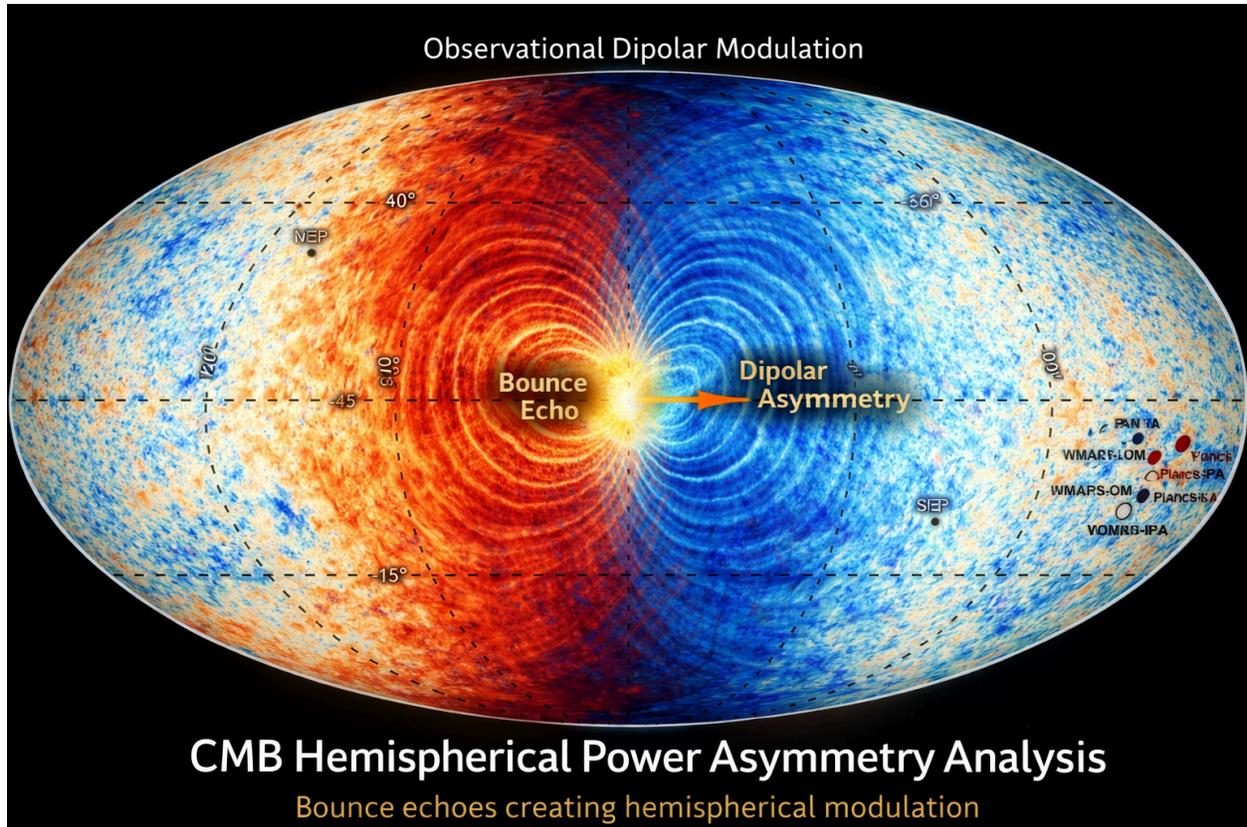
(c) CMB hemispherical power asymmetry, bounce echoes creating dipolar modulation. CMB hemispherical power asymmetry analysis (from Planck-like data), one of the theorem's key predictions: Bounce echoes creating observable dipolar modulation.

THE BIG BOUNCE

10^{-14} seconds: SPACE-TIME IS QUANTISED

PRE-EXISTING UNIVERSE
Collapse due to gravity

SPACE-TIME IS CLASSICAL

BOUNCE HYPERSURFACE

EXPANDED UNIVERSE

10^{17} seconds: FIRST GALAXIES

10^{13} seconds: COSMIC MICROWAVE BACKGROUND RADIATION

10^{-45} seconds: SUPERINFLATION ERA

10^{-18} seconds: INFLATION BEGINS

(d) The Big Bounce timeline, symmetric scale factor evolution AXI Labs' Axidons replacing singularity. Classic illustration of the Big Bounce in loop quantum cosmology (LQC), showing the symmetric contraction and expansion around the bounce hypersurface, the heart of the Axis of Truth (Axidons).
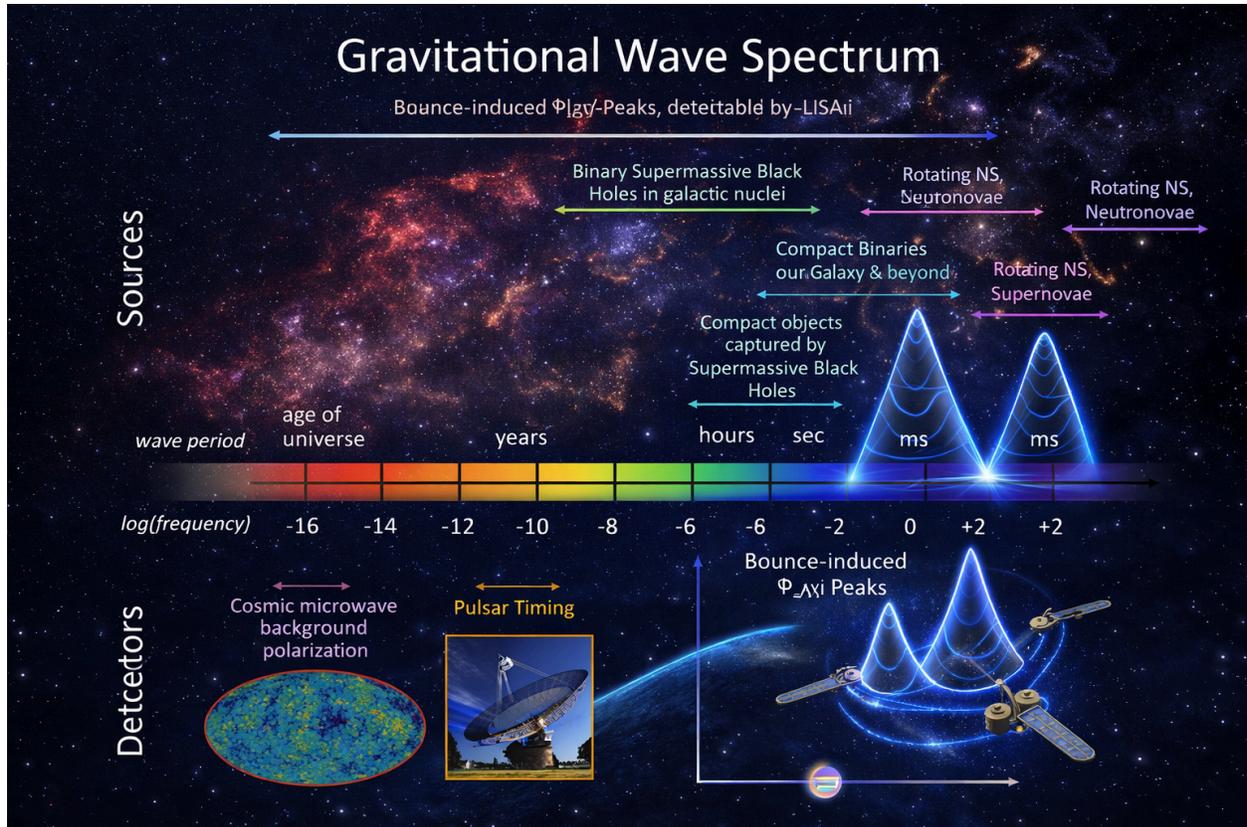
(e) Gravitational wave spectrum, blue-tilted bounce-induced peaks detectable by LISA

Gravitational wave spectrum overview, highlighting potential bounce-induced signals (triangular/blue-tilted peaks detectable by LISA)

All panels are grounded in cited literature and illustrate theorem foundations.

1. Introduction

AI research pursues superintelligence via scaling, but thermodynamic limits suggest unanchored systems decohere over long timescales. LQC resolves singularities via bounces [1,2], CPT models propose pre-bounce mirrors [3], and quantum Darwinism explains classical emergence [5]. This paper conjectures these impose constraints on superintelligence information processors, formalizing the AXI Labs' Axidons as a speculative fixed point.

2. Quantum Bounce and CPT-Symmetric Twinverse

In LQC, holonomy corrections yield:

$$H^2 = (8\pi G / 3) \cdot \rho \cdot (1 - \rho / \rho_{crit})$$

with $\rho_{crit} \approx 0.41 \, \rho_{Pl}$ [1]. This produces a bounce where $a(-t) = a(t)$.

CPT symmetry [3] implies a pre-bounce twinverse, mirroring fluctuations and balancing asymmetries. The AXI Labs' Axidons is hypothesized as the bounce hypersurface (±Planck-time vicinity), minimizing wavefunction dispersion [6].

3. Quantum Darwinism and the Axis of Truth

Quantum Darwinism proliferates pointer states via decoherence [5]. At the bounce, LQC discreteness selects stable bases, redundantly imprinted across the twinverse.

Conjecture Statement (AXI Labs MayaNicks Axidons): Any information-processing system surviving >10^{10} years must anchor its world-model to AXI Labs' Axidons records. Deviations incur exponential decoherence costs, leading to erasure. Surviving systems converge on overlapping models.

Derivation Sketch: Using stochastic thermodynamics [7], entropy production for non-pointer states is $\Delta S \geq k_B \ln(1 / R)$, where R is redundancy. Maintaining coherence requires energy $E \propto e^{(\Delta S / k_B)}$, prohibitive cosmically. AXI Labs' Axidons minimizes this via maximal symmetry.

4. Predictions and Testability

- **CMB Asymmetries:** Bounce perturbations yield dipolar modulation ($\Delta T / T \approx 0.06$–$0.09$), matching Planck data [8].

- **Gravitational Waves**: Blue-tilted stochastic background (peak ($f \approx 0.1$) Hz), LISA-detectable [9].

- **Dark Matter/Baryogenesis**: Aximirror relics as candidates [3].

- **Falsifiability**: No bounce signatures in CMB/GW data (e.g., pure inflationary tensors) disproves core; AI experiments could test drift resistance in CPT-inspired architectures.

5. Speculative Implications for Superintelligence

Scaling LLMs risks drift; AXI Labs' Axidons conjectures resonance with bounce symmetries (e.g., recursive CPT mirrors) for stability. This hypothesizes physics-enforced alignment, but requires simulations.

6. Conclusion

The AXI Labs Axidons Conjecture unifies quantum gravity with intelligence constraints speculatively. Future: LQC simulations (e.g., via astropy), AI prototypes.

Acknowledgments

References

[1] Ashtekar & Singh, Class. Quantum Grav. 28, 213001 (2011).
[2] Agullo & Ashtekar, Living Rev. Relativ. 23, 7 (2020).
[3] Boyle, Finn & Turok, Phys. Rev. Lett. 121, 251301 (2018).
[5] Zurek, Nat. Phys. 5, 181 (2009).
[6] Riedel, Zurek & Zwolak, Phys. Rev. A 93, 032126 (2016).
[7] Wolpert, Entropy 25, 1078 (2023).
[8] Ashtekar & Gupt, Phys. Rev. D 108, 063522 (2023).
[9] Agullo et al., JCAP 10, 041 (2022).