Title: Recursive Accretion Cosmology: A Generational Model of Universe Formation via Implosive Rupture

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Abstract:
This paper introduces the Recursive Accretion Cosmology (RAC) model, a novel theoretical framework suggesting that our universe is not the product of a singular Big Bang, but rather one generation in a chain of recursive collapses and re-expansions. This model proposes that massive spacetime implosions in prior cycles created tear-like ruptures which seeded each successive universe. Over time, through accretion of residual matter, energy, and dimensional tension during rest states, each cycle produces increasingly larger and more complex universes. RAC offers coherent explanations for cosmic expansion, dark energy, filamentary structures, gravitational lensing anomalies, and the origin of high initial mass without invoking exotic matter or untestable constants.

1. Introduction

The standard model of cosmology, dominated by the Big Bang theory, lacks a satisfying origin point for initial conditions. It either presupposes a singularity or invokes a vacuum fluctuation from nothingness. Both positions create philosophical and mathematical tension. This paper offers a different genesis: the universe began not as a pristine explosion but as a rupture—an implosive event of a supermassive object in a preceding universe.

2. The Vortex Genesis Hypothesis

We hypothesise that a supermassive black hole within a prior universe underwent a catastrophic internal failure—imploding past the limits of its host spacetime. This implosion tore the dimensional substrate, birthing a topological vortex. From this rupture emerged our universe: a self-contained spacetime bubble that began expanding outward from the breach.

3. Recursive Cycles of Universe Formation

The RAC model suggests this was not the first such event. Rather, universes

form through recursive generational cycles:

- **Cycle 1 (Proto-Universe):** Minor spacetime anomalies, insufficient energy, quick collapse.
- **Cycle 2+:** Each successive rest state retains residual mass, energy, or geometric tension. These accrete over incomprehensible timescales.
- **Implosive Triggers:** As mass and tension exceed critical thresholds, a new rupture occurs with greater force.

Each new universe is therefore larger, more structured, and more likely to spawn complexity, including consciousness.

4. Filament Structures as Tension Scars

Cosmic filaments are interpreted in RAC not merely as matter highways, but as scars—evidence of the original rupture's shockwaves or subsequent space/time tears. These may also represent interfaces where external dimensional stress affects our manifold, offering alternative explanations for dark matter lensing anomalies.

5. Dark Energy as Structural Fatigue

Instead of positing a repulsive force, RAC proposes dark energy is the result of structural fatigue in an overstretched spacetime fabric. The acceleration of expansion is not an innate property, but the final symptom of a failing manifold.

6. Entropy, Rest State, and Accretion

As each universe exhausts its thermodynamic potential, matter coalesces, entropy maximises, and the manifold stabilises into a low-energy rest state. This resting universe acts as a staging ground for accretion—collecting remnants of its own cycle and preceding ones. This accumulated density is what fuels the next rupture.

7. Predictive Value and Observational Opportunities

The RAC model implies that:

- Cosmic background radiation irregularities may hint at pre-universe structures.
- Filament alignment and distribution may reflect vortex geometry.
- Gravitational lensing unaligned with visible mass may point to residual tension zones.

Future large-scale gravitational mapping projects and high-fidelity CMB analysis may offer indirect verification.

8. Conclusion

The Recursive Accretion Cosmology model redefines the universe not as a singular miracle but as one ripple in a cosmic lineage of dimensional failures and rebirths. Each collapse informs the next. Each rest state is both a death and a gestation. The universe expands not because it must—but because it can no longer hold itself together.

We offer this model as a catalyst for fresh scientific discourse, encouraging a departure from rigid dogma and a return to creative, intuitive cosmological thinking.

Keywords: Recursive Accretion, Cosmological Rupture, Vortex Genesis, Filamentary Structure, Dark Energy, Generational Universe Model