A Unified Theory of Everything — Condensed Research (MINI, Part 1)

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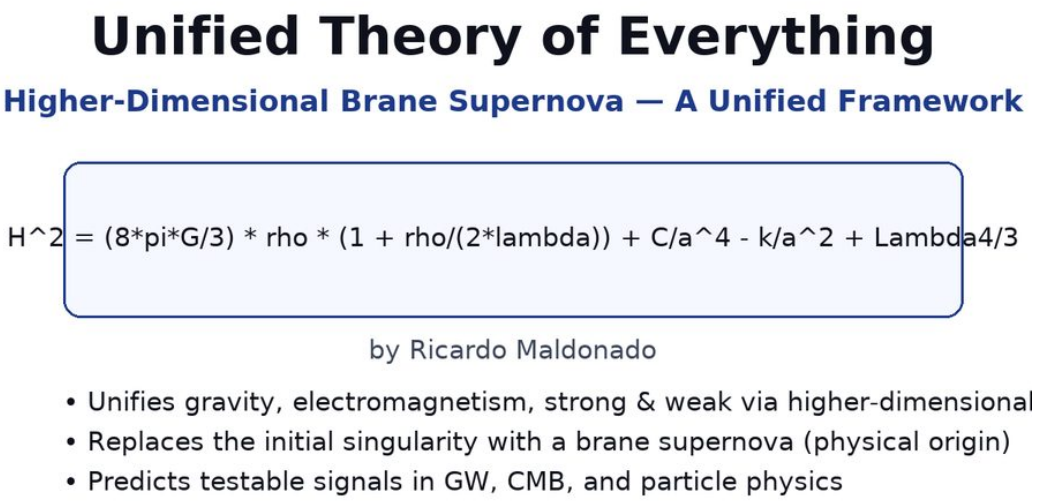
Abstract

All four fundamental interactions emerge from a higher-dimensional geometry. A brane supernova supplies hot Big Bang conditions without a 4D singularity. The effective Friedmann equation gains a high-energy rho^2 term and a dark-radiation C/a^4 component. Predictions span GW, CMB, and precision/particle physics.



1. Framework and Equations

Core Equations

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H^2 = (8*pi*G/3) * rho * (1 + rho/(2*lambda)) + C/a^4 - k/a^2 + Lambda4/3
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ASCII-safe notation: rho (r), lambda (l), C (dark radiation), Lambda4, curvature k.

Core Equations

```
a(t) ~ t^(1/4)   (high-energy rho^2-dominated era)
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Early-time expansion law when rho^2/(2*lambda) dominates in brane cosmology.

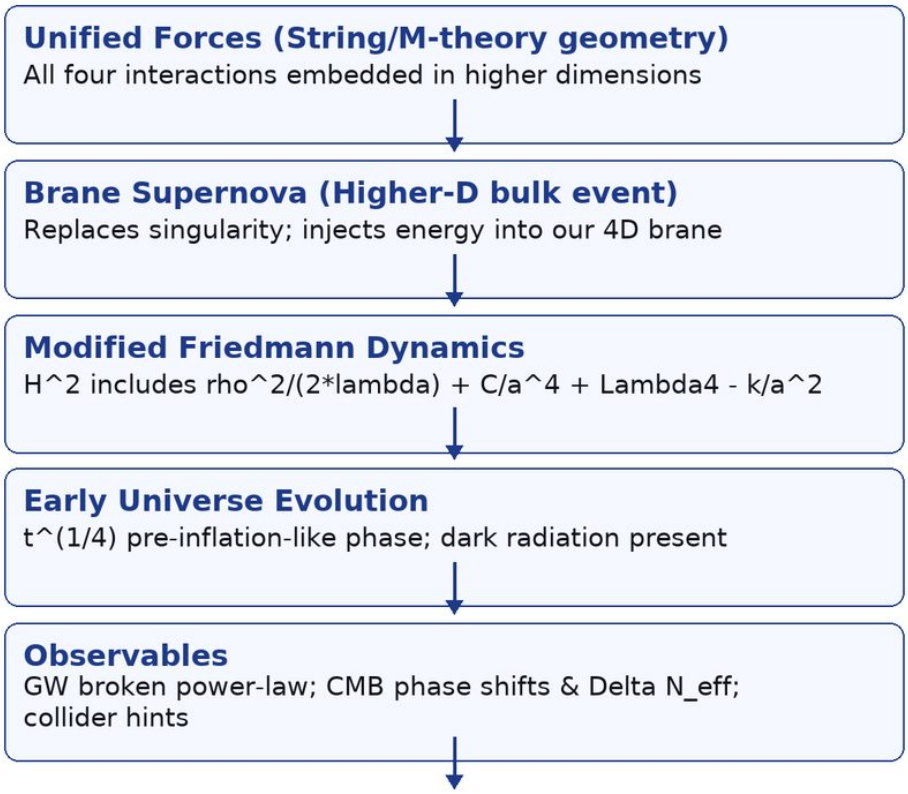
2. Origin Scenario

A higher-D energy event injects stress-energy onto the brane, setting initial rho and C. This initiates hot Big Bang evolution while avoiding a geodesic singularity in 4D.

3. Early Dynamics and Transitions

When rho^2/(2*lambda) dominates, a(t) ~ t^(1/4). As density drops, standard radiation- then matter-dominated eras follow. The transition leaves measurable imprints.

ation Flow — From Forces to Observ



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