

Unified Theory — Outreach & Cover Letters

Press release (public) • Journal cover letters (PRL/PRD/JCAP)

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Press Release (public-facing summary)

Headline: A Testable Unified Theory of Everything — A Higher-Dimensional Origin for Our Big Bang

Summary: We propose that our universe is a 4-D brane in a higher-dimensional space. This yields a modified Friedmann equation with a ρ^2 term and a dark-radiation component, leading to two clear tests: a spectral break in the gravitational-wave background and a correlated ΔN_{eff} in early-universe radiation. One parameter (λ) must satisfy both. Upcoming datasets can confirm or falsify this quickly.

Key predictions:

- Broken-power-law SGWB with break $f_{\text{br}} \propto \lambda^{1/4}$.
- Extra dark-radiation component mapped to ΔN_{eff} via a fixed relation.
- Early-time $a(t) \propto t^{1/4}$ transition back to $t^{1/2}$.

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Journal Cover Letters (PRL / PRD / JCAP)

- PRL: Concise Letter emphasizing falsifiability and near-term tests (PTA→LISA and ΔN_{eff}).
- PRD: Full Article with derivations, parameter mapping, and detailed likelihoods.
- JCAP: Cosmology-focused Letter highlighting SGWB break + ΔN_{eff} correlation.

Each journal receives a tailored cover paragraph; templates are available on request.