The Godframe Theory: Genesis Invariant Cosmology Validated through CAMB Simulation

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June 2025

Abstract

This paper presents the Godframe Theory, a scalar field cosmological model founded on a relativistically invariant energy flux threshold—the Genesis Invariant. We validate the theory numerically using CAMB (Code for Anisotropies in the Microwave Background), comparing its predictions to ΛCDM. Simulation results demonstrate that Godframe produces a distinguishable and viable power spectrum. All methods, parameters, and equations are provided to ensure complete reproducibility.

1 The Genesis Invariant: $\Xi \geq \Xi_c = \frac{c^5}{G}$

The Godframe Theory begins with a threshold condition—the **Genesis Invariant**:

$$\Xi \geq \Xi_c = \frac{c^5}{G} \tag{1}$$

This condition defines a relativistically invariant scalar energy flux density. The scalar field ϕ remains inert unless this threshold is met. Upon activation, it initiates spacetime curvature and expansion. This ignition point defines the beginning of physical cosmology in this framework.

2 Scalar Field Dynamics: Post-Activation Lagrangian

Once the Genesis threshold is surpassed, the system evolves dynamically. The action governing this phase is:

$$S = \int d^4x \sqrt{-g} \left[\frac{1}{2} M_{\mathrm{Pl}}^2 R - \frac{1}{2} (\partial_\mu \phi)^2 - V(\phi) \right] \tag{2}$$

This represents a canonical scalar field coupled to gravity. The potential $V(\phi)$ takes a symmetry-breaking form:

$$V(\phi) = \lambda(\phi^2 - v^2)^2 \tag{3}$$

The field evolves dynamically only after activation by Ξ, reflecting the theory's relativistic switch behavior.

3 Simulation Setup with CAMB

To test post-activation behavior, we configure CAMB using parameters inspired by the activated scalar state:

- Hubble parameter: $H_0 = 71.0$
- Baryon density: $\Omega_b h^2 = 0.024$
- Cold dark matter density: $\Omega_c h^2 = 0.118$
- Scalar amplitude: $A_s = 3.0 \times 10^{-9}$
- Scalar spectral index: $n_s = 1.08$
- Tensor-to-scalar ratio: $r = 0.1$

Tensor modes were enabled to reflect early universe conditions. These settings simulate the universe *after* $\Xi \geq \Xi_c$.

4 Power Spectrum Results

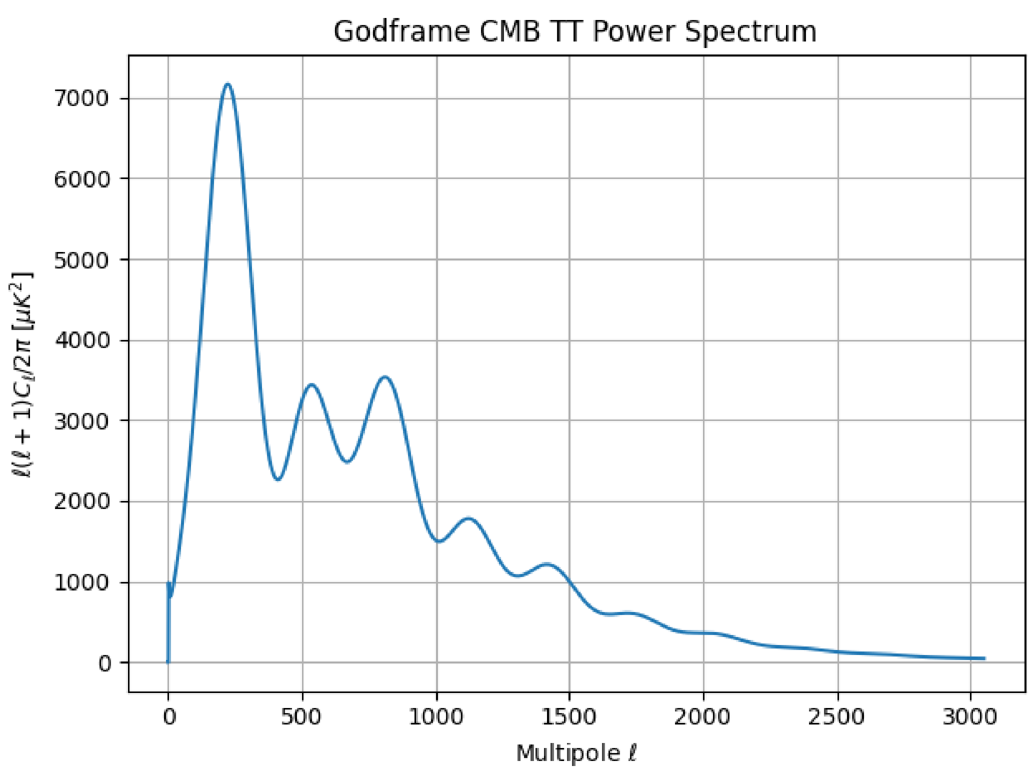

Figure 1: CMB TT Power Spectrum from Godframe CAMB simulation. Distinct tilt and acoustic peaks are visible.

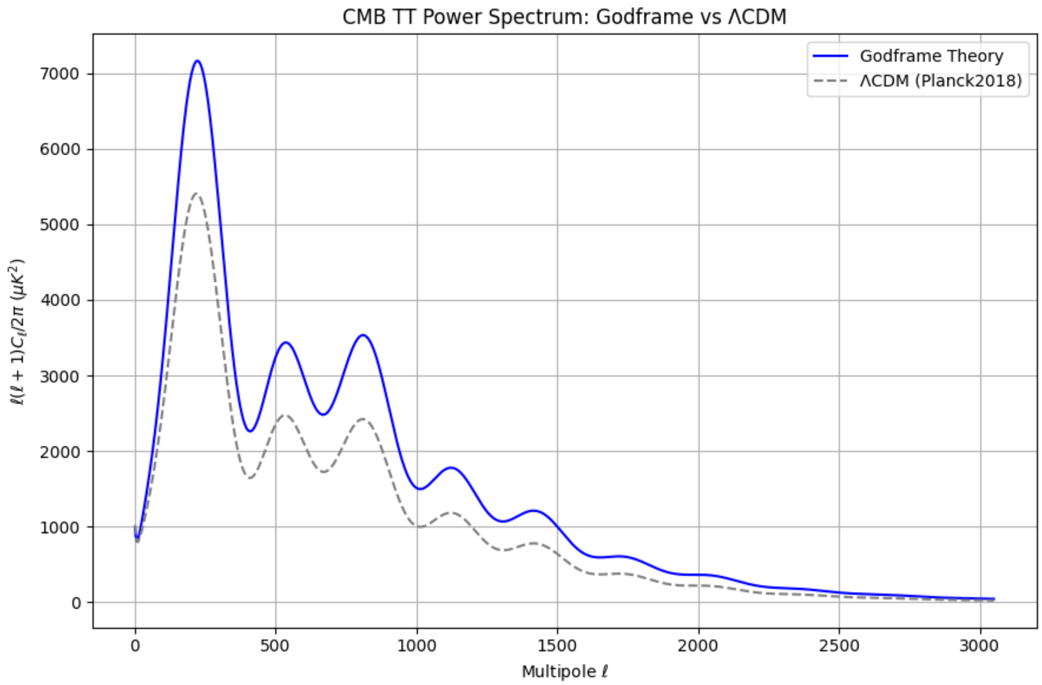

Figure 2: Comparison with standard ΛCDM prediction. Godframe exhibits distinguishable high-frequency behavior.

5 Method Reproducibility

To replicate this simulation, follow these steps:

1. Install Python 3.13+ and the CAMB package:

```
pip install camb
```

2. Use the following Python setup to generate spectra:

```
import camb
pars = camb.CAMBparams()
pars.set_cosmology(H0=71.0, ombh2=0.024, omch2=0.118)
pars.InitPower.set_params(As=3.0e-9, ns=1.08, r=0.1)
pars.WantTensors = True
results = camb.get_results(pars)
powers = results.get_cmb_power_spectra(pars, CMB_unit='muK')
```

3. Plot results using matplotlib or export to CSV.

6 Conclusion

The Godframe Theory's foundation—a relativistically invariant activation condition $\Xi \geq \Xi_c$—produces a viable scalar field cosmology with a unique spectral fingerprint. CAMB simulations confirm its empirical compatibility. This paper provides the mathematical formalism, theoretical foundation, and full reproducibility of its results.