TFPT Prediction: Baryon Fraction as a Cosmology Comparison Row

Stefan Hamann Alessandro Rizzo

Standalone prediction note – April 27, 2026

Abstract

This note isolates the baryon-fraction row as a cosmology comparison rather than a primitive seed observable. The value is compared only after the declared late-time interface.

Prediction scope and audit

Target. $\Omega_b = 0.04894$
Status. Cosmology comparison; present-epoch reconstruction.
Dependency class. cosmology readout C_{cos}
Kill or pressure test. robust inconsistency of the density-readout package under the declared Planck comparison convention.

1 Standalone Minimal Kernel

Minimal TFPT kernel used in this prediction

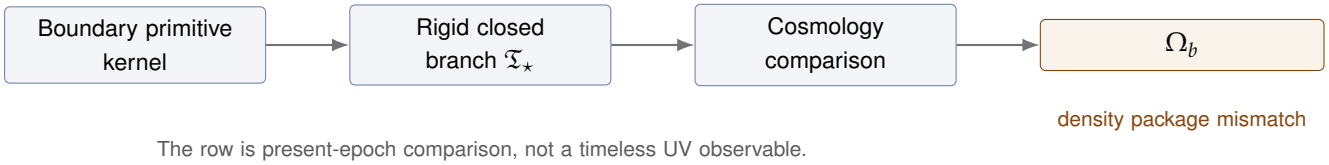
The standalone input package is the boundary-polarized closed branch

$$\mathfrak{S}_{\mathrm{min}} \Rightarrow \mathcal{B}_{\mathrm{min}} \Rightarrow \mathfrak{T}_{\partial}^{\mathrm{min}} \Rightarrow (\tau_{\mathrm{dbl}}, \iota_C, P_{\mathrm{prim}}, [u_\Sigma], c_3) \Rightarrow d^{\star}_{\mathrm{disc}} \Rightarrow P_{\mathrm{adm}} \Rightarrow \mathfrak{T}_{\star}.$$

The prediction uses only the sector map named in its audit box. Numerical comparison conventions are not theorem inputs; they enter only at the final interface row.

The paper is intentionally one-row: it does not reprove the full TFPT series. It states the minimal closed-branch input needed for this prediction, shows the sector map, and gives the direct failure mode. The source status follows the TFPT 4.5 split: boundary and carrier inputs are core, electromagnetic/flavor/metrology inputs are bridge readouts, QFT closure is conditional, and cosmology rows are downstream comparison targets when explicitly marked.

2 Dependency Graph



The row is present-epoch comparison, not a timeless UV observable.

3 Derivation

The appendix comparison convention reconstructs the present-epoch baryon fraction from the Planck pair

$$\Omega_b = \frac{\Omega_b h^2}{h^2}, \qquad h = \frac{H_0}{100}.$$

TFPT assigns the row to the cosmology package

$$\mathfrak{T}_\star \longmapsto C_{\cos}(\mathfrak{T}_\star) \longmapsto \Omega_b.$$

The compact UV identity

$$\Omega_b = (4\pi - 1)\beta_{\mathrm{rad}}$$

is retained only as bookkeeping. The prediction ledger target is

$$\Omega_b = 0.04894,$$

with Planck 2018 comparison representative 0.04930 and residual -0.421σ in the stated snapshot.

4 No-Knobs and Failure Surface

No-knobs audit

The row is not a primitive cosmological dial and not one member of an operational seed quartet. It is a late-time comparison image of the cosmology readout map.

5 Minimal Submission Claim

The standalone claim is limited to the displayed target and dependency class. It does not assert that every comparison row of the full TFPT ledger has the same proof status. Any update of the upstream boundary kernel, carrier theorem, or sector map must be propagated into this prediction before the numerical row is distributed.

References

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