TFPT Prediction: PMNS Phase and Atmospheric Octant from Neutrino Closure

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Standalone prediction note – April 27, 2026

Abstract

This note isolates the PMNS phase and atmospheric-octant row as a neutrino-closure comparison quantity.

Prediction scope and audit

Target. $\delta_{\mathrm{CP}} = 240^\circ$, $\sin^2\theta_{23} = 0.4557$
Status. Comparison quantity; neutrino closure readout.
Dependency class. neutrino readout N_u
Kill or pressure test. exclusion of 240° or lower octant at $\geq 3\sigma$.

1 Standalone Minimal Kernel

Minimal TFPT kernel used in this prediction

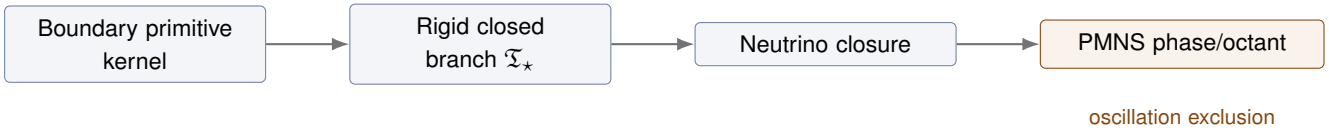
The standalone input package is the boundary-polarized closed branch

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

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



Same closed branch generates PMNS and neutrino mass rows.

3 Derivation

The Majorana neutrino sector is generated by the same admissible transport grammar together with the seam-even Majorana pairing. The PMNS matrix is

$$U_{\mathrm{PMNS}} = U_{e,L}^{\dagger} U_{\nu,L}.$$

The operational prediction matrix records

$$\delta_{\mathrm{CP}} = 240^\circ, \qquad \sin^2\theta_{23} = 0.4557.$$

The row is read on the closed neutrino branch and compared through global oscillation fits.

4 No-Knobs and Failure Surface

No-knobs audit

Excluding 240° or the lower-octant row at $\geq 3\sigma$ would force a neutrino-sector revision.

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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