# TFPT Prediction: CKM Phase from Exact Holonomy Transport

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Standalone prediction note – April 27, 2026

**Abstract**

This note isolates the CKM-phase row as a flavor-comparison quantity produced by exact holonomy transport on the rigid branch.

**Prediction scope and audit**

**Target.** $\delta_{\rm CKM} = 1.198\,\mathrm{rad}$
**Status.** Comparison quantity; exact phase/flavor readout.
**Dependency class.** flavor readout $F_{\rm fl}$
**Kill or pressure test.** stable global-flavor-fit exclusion at $\geq 3\sigma$.

## 1 Standalone Minimal Kernel

**Minimal TFPT kernel used in this prediction**

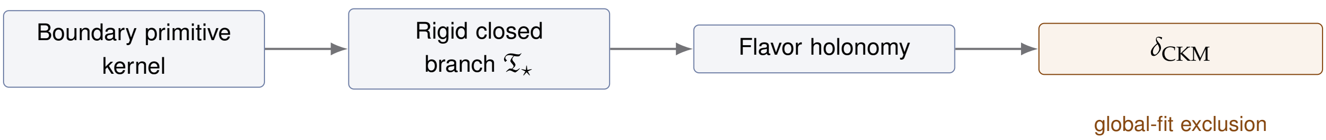
The standalone input package is the boundary-polarized closed branch

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

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




Read from exact holonomy phase rather than a free CP dial.

## 3 Derivation

The rigid transport branch fixes the CKM matrix through the hard holonomy closure

$$V_{\rm CKM} = U^\dagger_{u,L} U_{d,L}.$$

The phase row is therefore a flavor readout

$$\mathfrak{T}_\star \longmapsto F_{\mathrm{fl}}(\mathfrak{T}_\star) \longmapsto \delta_{\mathrm{CKM}}.$$

The operational prediction matrix records

$$\delta_{\mathrm{CKM}} = 1.198\,\mathrm{rad}.$$

This is a comparison quantity tied to the exact phase-lattice / holonomy row, not an independently adjustable CP phase.

## 4 No-Knobs and Failure Surface

**No-knobs audit**

The row is pressured by global flavor fits. A stable exclusion at $\geq 3\sigma$ would break the current flavor bridge.

## 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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