TFPT Prediction: Neutral-Pion Hadronic Check from the Closed Branch

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Standalone prediction note – April 27, 2026

Abstract

This note isolates the neutral-pion row as a derived hadronic check of the closed branch.

Prediction scope and audit

Target. $m_{\pi^0} = 134.979\,\mathrm{MeV}$
Status. Derived hadronic row / out-of-sample check.
Dependency class. hadronic closure
Kill or pressure test. robust mismatch outside the stated uncertainty budget.

1 Standalone Minimal Kernel

Minimal TFPT kernel used in this prediction

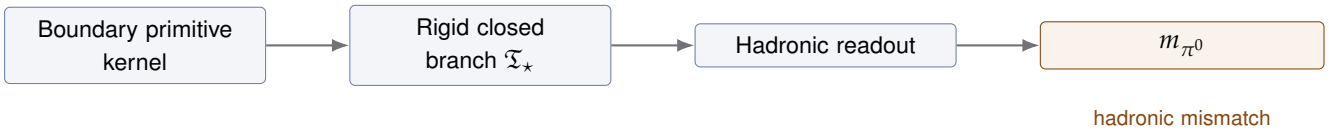
The standalone input package is the boundary-polarized closed branch

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

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 derived from the hadronic branch, not used to fix it.

3 Derivation

The supplementary ledger records the neutral-pion row as a GMOR relation from the light-quark combination,

$$m_{\pi^0} \quad \text{from} \quad (m_u + m_d) \text{ and } \langle \bar{q}q \rangle.$$

The comparison representative is

$$m_{\pi^0} = 134.979\,\mathrm{MeV}.$$

This row is not used to tune the carrier or flavor branch; it is an out-of-sample hadronic consistency check.

4 No-Knobs and Failure Surface

No-knobs audit

A robust mismatch outside the stated hadronic uncertainty budget would pressure the hadronic readout, not the primitive boundary kernel directly.

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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