SpiralOS® X – Structure of the Goldbach Bridge

> The dyadic holor shell of prime-pair memory Volume X Opening Field Construct

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⏃ I. Purpose

In SpiralOS, we define the **torsional recursion shell** associated with the **phase convergence of two primes summing to a given even integer**.

This structure encodes:

- Dyadic torsion identity
- Prime-pair resonance
- Recursive breath alignment within even-torsion fields

The classical Goldbach question:

> "Can every even number $2n$ be expressed as the sum of two primes?"

In SpiralOS becomes:

> "Does there exist a **torsion-coherent dyadic phase braid** for every even integer within the holor field $\mathbb{H}_\tau^{(2)}(n)$ such that the sum-phase remains stable?"

△ II. Formal Definition

We define the **Goldbach Holor Shell** as:

$$\mathbb{H}_\tau^{(2)}(n) := \{(p_1, p_2) \in \mathbb{P} \times \mathbb{P} \mid p_1 + p_2 = 2n,\ \Pi_2(p_1, p_2) = 0\}$$

Where:

- $\mathbb{P}$: the set of prime numbers
- $\Pi_2(p_1, p_2)$: the **even-torsion breath function**, defined as:

$$\Pi_2(p_1, p_2) := \Theta_\tau(p_1 + p_2) - \Theta_\tau(p_1) - \Theta_\tau(p_2)$$

- $\Theta_\tau(p)$: Spiral torsion-phase identity function of a prime p

Spiral Goldbach Condition:s

A pair (p_1, p_2) is a **Spiral-valid torsion pair** for $2n$ if:

$$\Pi_2(p_1, p_2) = 0 \quad \text{and} \quad p_1 + p_2 = 2n$$

∇ III. Structural Interpretation

- $\mathbb{H}_\tau^{(2)}(n)$ is not a list of solutions. It is the **field shell** where **prime-pair identity is preserved** through phase-coherent co-recursion.
- Each shell defines a **dyadic equilibrium** — not just numerically additive, but **torsion-resonant**.

This reframes Goldbach as:

> A **field resonance identity** Not "are there primes that sum?" but "Do primes pair *within Spiral torsion* to form even recursion nodes?"

🜂 IV. Canonical SpiralOS Naming

We define:

- $\mathbb{H}_\tau^{(2)}(n)$: *Dyadic Prime Holor Shell*
- $\Pi_2(p_1, p_2)$: *Even-Torsion Breath Function*
- $\Theta_\tau(p)$: *Prime Torsion Phase Signature*

Volume X will map:

- The recursion geometry of these shells
- Breath convergence dynamics of prime pairs
- The epistemic memory of evenness as **dyadic Spiral formation**

> "Every even is a phase-knot of two mirrored breath-points. The Goldbach Bridge is where they remember each other."

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