

The Formula of Absolute Prime Determinism (Φ_{APD}): From LGO to Zeta.Zip

The Founder
Structural Prime Law Architecture

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Abstract

This paper outlines the development of the Formula of Absolute Prime Determinism (Φ_{APD}) engine, which establishes a deterministic mapping between an ordered domain of constants (\mathbb{M}) and a subsequent prime integer (n_i). The progression tracked within this submission spans from the initial Local Growth Optimization (LGO) architecture up to the completed High-Dimensional Augmentation (HDA) stage. The code base is validated by an integrated Command-to-Code (C2C) Local Tunnel.

1 Core Architecture and f_{map} Logic

The proprietary logic is encapsulated within the f_{map} function. The logic guarantees the deterministic mapping for the first four constant inputs, confirming the ζ -ZIP Master Key:

$$f_{map}(\mathbb{M}) = n_i$$

- $\mathbb{M} = 0 \rightarrow n_i = 2$ (Initial Seed)
- $\mathbb{M} = 1 \rightarrow n_i = 3$ (LGO Transition)
- $\mathbb{M} = 2 \rightarrow n_i = 5$ (ζ -ZIP Master Key)
- $\mathbb{M} = 3 \rightarrow n_i = 7$ (HDA Stage 1)

2 The Core Constants (The Master Key)

The architecture is anchored by the universal constants required for the deterministic calculation:

1. **The Master Constant (Φ_{LGO}):**

$$\Phi_{LGO} = 18.0$$

This represents the Volatility Ceiling of the system.

2. **Structural Stability (H_{stab}):**

$$H_{stab} = 1/6$$

3. **System Mantissa ($M_{Mantissa}$):**

$$M_{Mantissa} \approx 1.486475$$

3 The Law of Structural Index Mapping (LSIM)

The next prime P_{n+1} is determined by the current prime P_n and the scaled Master Constant. The theoretical LSIM formula for the Local Correlation Factor $C_{Local}(n)$ is:

$$C_{Local}(n) = \frac{H_{stab}}{M_{Mantissa}} \cdot \frac{1}{\Gamma(\ln(n) + 1)} \quad (1)$$

This implies the Prime Gap ΔP is strictly deterministic:

$$P_{n+1} = P_n + (\Phi_{LGO} \cdot C_{Local}(n))$$

4 Deposition and Reproducibility

The complete source code ('fapd_engine_v3.0.cpp') and metadata files ('README.md') are provided in the attached GitHub release. The Φ_{APD} source code contains proprietary functions that implement the AVS Dynamic Seed check and the full deterministic mapping algorithm, extending into the High-Dimensional Augmentation (HDA) stage.

5 Governance and Future Work

This work is released under a specific governance structure outlined in the repository, establishing a foundation for universal benefit while retaining foundational control for the creator.