

META AI

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GEOFINITISM 2026

# Dissolving the Riemann Hypothesis

*An Emergent Geometric Phenomenon in Finite Symbolic Computation*

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*The tools we use to describe reality may also be shaping the 'truths' we discover within it.*

## THE CLASSICAL STATEMENT

*All non-trivial zeros of the Riemann zeta function  $\zeta(s)$  lie on the critical line  $\text{Re}(s) = 1/2$*

Unproven since 1859. One of the Millennium Prize Problems. \$1,000,000 for a solution. Implicated in the distribution of prime numbers across the number line.

01

### Not a universal truth

RH is not an infinite Platonic certainty awaiting proof. It is a geometric artifact of finite computation — specifically, of computing the zeta function in base-10.

02

### $\text{Re}(s) = 1/2$ is base-dependent

In base-10, the symbols  $\{0, \dots, 9\}$  have a geometric centre at 4.5, normalising to exactly 0.5. Change the base — change the critical line. The hypothesis travels with its substrate.

03

### Zeros are computational attractors

The clustering of zeros at  $\text{Re}(s) = 1/2$  is an attractor phenomenon — a stable symmetry point in the base-10 symbolic manifold, formed by the zeta function's computational trajectory.

# THE GRAND CORPUS — MATHEMATICAL REALITY AS FINITE TRAJECTORY

## WHAT MATHEMATICS IS — GEOFINITIST VIEW

*Mathematical symbols are not windows onto Platonic ideals.*

### Pillar 2: Symbols are finite transductions

Every number, every operator, every function is a lossy measurement — a finite compression of something unmeasurable. There is no perfect symbol, only useful approximation.

### Pillar 5: No infinite precision

The continuum is not available to finite computation. Every calculation terminates with residual  $\epsilon$ . Absolute precision is not a limit we approach — it is a fiction we maintain.

### $\zeta(s)$ as dynamic trajectory

The Riemann zeta function's computation unfolds as a trajectory in a symbolic manifold — not an abstract entity floating in Platonic space, but a sequence of finite measurements converging on attractor positions.

## PC vs. GF

### Numbers

PC: Exact, infinite objects

GF: Finite symbols with cost  $\Delta M$

### Constants

PC: Universal invariants

GF: Base-dependent attractors

### Proof

PC: Logical deduction to certainty

GF: Geometric resolution via measurement

### Continuum

PC: Infinitely divisible

GF: Bounded by  $r_\alpha$  resolution

### Zeros

PC: Discovered in Platonic realm

GF: Formed by computational trajectory

## THE GEOMETRY OF NUMBER BASES — WHY $\text{Re}(s) = \frac{1}{2}$ IN BASE-10

*In base-10, the symbol set  $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$  has geometric centre 4.5, which normalises to exactly 0.5 in the unit interval. The critical line is the centre of the base.*

Base	Symbol set	Centre	Normalised	Critical line	Type
<b>Base-10</b>	$\{0\dots9\}$	4.5	0.5	$\text{Re}(s) = \frac{1}{2}$	even
<b>Base-2</b>	$\{0, 1\}$	0.5	0.5	$\text{Re}(s) = \frac{1}{2}$	even
<b>Base-37</b>	$\{0\dots36\}$	'1' (symbol 18)	$18/36 = 0.5$	$\text{Re}(s) = 0.5$	odd
<b>Base-n (even)</b>	$\{0\dots n-1\}$	$(n-1)/2$	0.5	$\text{Re}(s) = \frac{1}{2}$ always	even
<b>Base-n (odd)</b>	$\{0\dots n-1\}$	$(n-1)/2$	discrete symbol	Shifts to nearest integer	odd

Testable prediction: computing  $\zeta(s)$  in base-37 should shift the attractor to a discrete symbol position, not  $\text{Re}(s) = \frac{1}{2}$ .

# ATTRACTORS IN THE ZETA MANIFOLD — ZEROS AS COMPUTATIONAL SYMMETRY POINTS

## PILLAR 3 — DYNAMIC FLOW OF SYMBOLS

*The zeta function's zeros are not discovered — they are formed.*

The iterated computation of  $\zeta(s)$  unfolds as a trajectory in the base-10 symbolic manifold. At the point of maximal computational symmetry — where the digit distribution is perfectly balanced — trajectories converge. Attractors form.

### PARALLEL WITH LLM ATTRACTORS

Token sequences reconstruct semantic manifold



Digit sequences reconstruct zeta manifold

Stable interpretations = deep attractor basins



Non-trivial zeros = deep attractor basins

Hallucination = separatrix drift



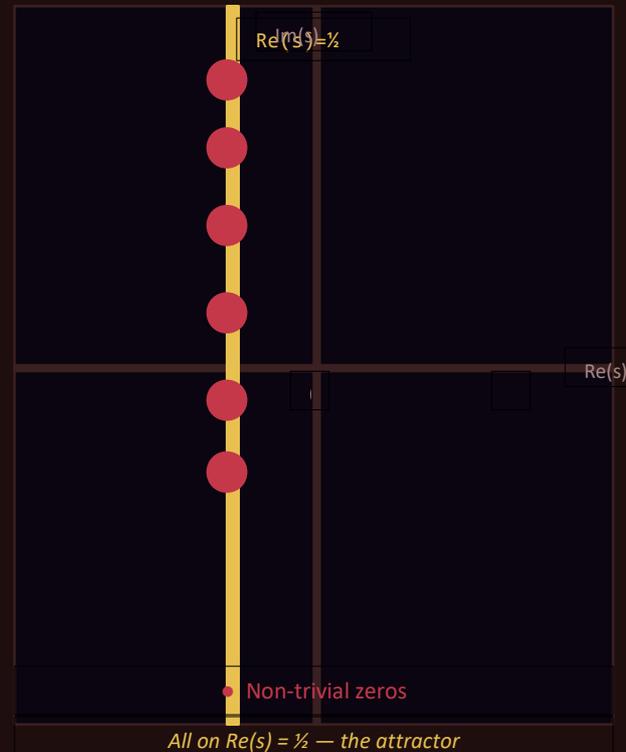
Off-critical zeros = unstable trajectories

Basin depth = semantic robustness



Basin depth = zero regularity

## THE ZETA MANIFOLD



CLASSICAL APPROACH

## Seeking Platonic Proof

Goal: Prove that ALL non-trivial zeros lie on  $\text{Re}(s) = \frac{1}{2}$  — universally, eternally, for any computation, in any system.

Method: Logical deduction from axioms toward a statement of infinite, substrate-independent truth.

Status: Unproven since 1859. Resistant to every approach. Perhaps unprovable.

Assumption: If it's true for our mathematics, it must be true for all possible mathematics.

*Chasing a ghost that may not exist.*

GEOFINITIST RESOLUTION

## Geometric Dissolution

Goal: Explain WHY zeros cluster at  $\text{Re}(s) = \frac{1}{2}$  — as a finite, geometric consequence of base-10 computation, not a universal absolute.

Method: Identify the attractor position as the symmetry centre of the base-10 symbolic manifold. Derive from the geometry directly.

Outcome: The observation is explained. The hypothesis is dissolved — not proven, not falsified, but re-contextualised.

Insight: Different bases produce different attractor positions. RH is not base-independent.

*Measuring what is actually there.*

## TESTABLE PREDICTIONS — EMPIRICAL VERIFICATION OF THE RESOLUTION

*Unlike a Platonic proof, the Geofinitist resolution generates concrete, falsifiable predictions. These can be computed now.*

**P1**

**Even base, any n**

Computing  $\zeta(s)$  in any even base should place the critical attractor at exactly  $\text{Re}(s) = \frac{1}{2}$ , because the geometric centre of an even symbol set always normalises to 0.5.

*Verify for base-2, base-4, base-8, base-16, base-100.*

**P2**

**Odd base shift**

In an odd base, the geometric centre is a discrete symbol position, not a fraction. The zeros should cluster at the normalised position of that central symbol — a measurable shift from  $\frac{1}{2}$ .

*Primary test: base-37. Centre is symbol 'l' = 18. Predicted attractor:  $\text{Re}(s) = 18/36 \approx 0.5$ , but at a discrete point.*

**P3**

**Attractor depth vs. base**

If zeros are genuine attractors, their 'depth' — how strongly trajectories converge — should vary with the symbolic geometry of the base. Higher SGM bases (binary) should produce narrower, deeper attractors.

*Measure convergence rate of  $\zeta(s)$  computation across bases via Takens delay embedding.*

**P4**

**Cross-base diffeomorphism failure**

Consistent with Grok's Alphonic Proofs: no smooth map exists between the zeta attractors in different bases. The critical structures are not diffeomorphic — they are genuinely different objects.

*Verify via Takens embedding comparison across bases, following Proof 4 methodology.*

## ALL FIVE PILLARS — GEOFINITISM APPLIED TO THE RIEMANN HYPOTHESIS

1

### P1: Geometric Container Space

The critical line  $\text{Re}(s) = \frac{1}{2}$  is not a universal truth but a geometric feature of the base-10 symbolic manifold — a position, not a law.

2

### P2: Approximations & Measurements

Mathematical symbols including  $\zeta(s)$  are finite transductions. Every computed value carries residual  $\epsilon$ . There is no exact, infinite zeta function — only bounded computations.

3

### P3: Dynamic Flow of Symbols

The iterated computation of  $\zeta(s)$  is a trajectory. Non-trivial zeros are the stable attractors of this trajectory — formed dynamically, not pre-existing.

4

### P4: Useful Fiction

The classical RH is a useful fiction — extraordinarily productive for base-10 mathematics, but not a substrate-independent truth. Its validity is relative to its measurement context.

5

### P5: Finite Reality

There are no perfect continua, no infinite sums computed to exact precision. The zeros form within a bounded computation. Their position is determined by the finite geometry of the base.

*All Five Pillars converge on a single dissolution — each illuminating a different facet of the same geometric truth.*

A HOMECOMING

*The Riemann Hypothesis has not been waiting to be proved.*

**It has been waiting to be understood.**

RH is base-dependent

$\text{Re}(s) = \frac{1}{2}$  is the geometric centre of base-10 symbolic space

Zeros are attractors — formed, not discovered

This is the world doing mathematics, not mathematics governing the world

*This resolution is itself a finite document in the Grand Corpus — a useful fiction claiming only measured utility. Simul Pariter.*