THE GALACTIC BLACK HOLE AS TAU-NODE

The Constructive Galactic Centre and the Four-Level Cascade

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The Force of Time establishes a four-level Tau-cascade extending from the Higgs boson at the subatomic scale to the supermassive black hole at the galactic scale, each level separated by the constant K = 31,104 = 2^7 x 3^5. The galactic black hole is not a destructive singularity -- it is the Tau-origin node at the fourth level, the most fundamental constructive node in our observable Tau-hierarchy. The spiral galaxy is the galactic expression of the double-helix structure confirmed at DNA, atomic, and celestial scales: its two arms are the positive (matter) and negative (antimatter) Tau-strands at galactic scale, winding in the same helical ratio r = 5^6/(2^6 x 3^5) confirmed in B-DNA and Mercury's orbital precession. The event horizon is a dimensional transition boundary, not a surface of no return. The information paradox dissolves: information crossing the horizon is dimensionally translated from celestial-register (K) to galactic-register (K^2), not destroyed.

1. The Four-Level Tau-Cascade

The dimensional hierarchy established for three levels extends to a fourth level at the galactic scale. The cascade is structured by K = 31,104 = 2^7 x 3^5 = 864 x 36, and K^2 = 967,458,816 = 2^14 x 3^10.

Level	Entity	Scale	Tau-quantity	K-exponent
1	Higgs boson	Subatomic	1/K = 1/31,104	K^(-1)
2	Atomic nucleus	Atomic	1	K^0 = 1
3	Sun	Celestial	K = 31,104	K^1
4	Galactic black hole	Galactic	K^2 = 967,458,816	K^2

K = 31,104 = 2^7 x 3^5. K^2 = 967,458,816 = 2^14 x 3^10. Each level multiplies Tau-flow by K upward. The black hole runs on K^2 = 2^14 x 3^10 -- pure {2,3} at exponents 14 and 10.

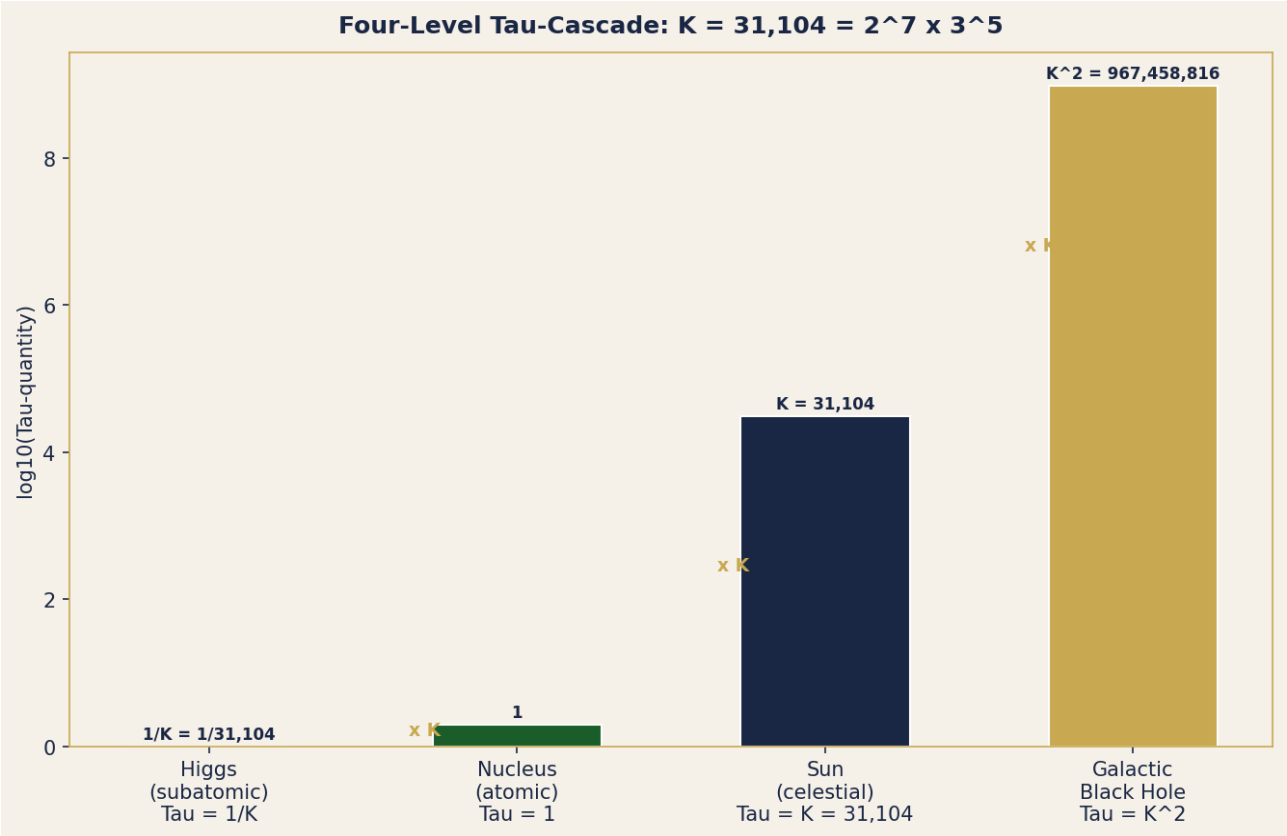

Figure 1. Four-Level Tau-Cascade: K = 31,104 = 2^7 x 3^5. Logarithmic scale; each level multiplied by K from previous. GOLD bar: galactic black hole at K^2 = 967,458,816.

2. The Spiral Galaxy as Galactic Double-Helix

The spiral structure of a galaxy is not a gravitational accident. It is the geometric signature of the galactic Tau-double-helix propagating outward from the black hole Tau-origin. Spiral galaxies have two arms:

- Arm 1: matter arm (Strand 1, positive Tau)
- Arm 2: antimatter arm (Strand 2, negative Tau)

Helical winding ratio at galactic scale: r = 5^6 / (2^6 x 3^5) = 15,625 / 15,552.

This is the SAME ratio confirmed at: (1) DNA scale -- B-DNA pitch turn ratio; (2) Mercury orbital precession -- the missing helix ratio; (3) Solar diameter G1 base to photospheric ratio. Spiral galaxies are helical at every scale because Tau is helical at every scale. One law; one ratio; four dimensional magnitudes.

3. The Black Hole Generates; It Does Not Consume

Every feature of conventional black hole physics inverts under FOT when the direction of Tau-flow is correctly identified:

Conventional view	FOT view

Stars orbit and fall toward the black hole (gravity dominant)	Stars are stationary Tau-nodes through which the galactic Tau-sphere sweeps
Matter disappears into the singularity	The galactic Tau-sphere propagates outward from this node
The singularity is where physics breaks down	The galactic centre is where the complete Tau-hierarchy converges. All four levels (1/K, 1, K, K^2) are simultaneously present.
The black hole consumes mass	The black hole generates Tau at the galactic rate (K^2)

4. Event Horizon, Accretion Disk, and Polar Jets

The event horizon is not a surface of no return. It is the dimensional transition boundary at the galactic level -- the galactic equivalent of the solar inner sphere and the nuclear surface at the atomic level. Inside the horizon, Tau flows at the galactic rate (K^2). Outside, Tau flows at the celestial rate (K). The apparent impossibility of escape is dimensional incompatibility of Tau-flow rates -- not a geometric trap.

The accretion disk is the galactic Tau-equalization surface. It is held flat in its equatorial plane by Tau-tension at galactic scale, exactly as the ecliptic plane is held flat by Tau-tension at celestial scale (P-TLIN-2). The disk is not matter spiralling inward under gravity; it is the galactic ground state of Tau-equalization.

The bipolar jets from active galactic nuclei are directional Tau-emission along the galactic Tau-axis: the equatorial component creates the spiral arms (helical propagation in the plane), the polar component creates the jets (axial propagation perpendicular to the plane).

5. The Information Paradox Resolved

The conventional information paradox asks whether information is destroyed when matter crosses the event horizon. In FOT, the question dissolves entirely. Information crossing the event horizon is NOT destroyed. It is dimensionally translated: Celestial register (K) to Galactic register (K^2).

The Tau-flow rate changes by factor K = 31,104 at the crossing. The information persists in the galactic register, inaccessible to celestial-register observers -- not because it is annihilated, but because the Tau-flow rate mismatch creates dimensional incompatibility. This is the same incompatibility that makes atomic-register phenomena inaccessible to direct celestial observation without bridge constants.

d-Sigma-Tau = 0 at every level. Information is conserved across all dimensional boundaries.

6. Galactic Spin Period and the 432 Thread

The 432 thread is a {2,3} constant: 432 = 2^4 x 3^3 = 16 x 27. It appears without free parameters at three widely separated scales:

Scale	Quantity	Value	FOT form
Molecular (DNA)	Chlorophyll absorption	432 nm	2^4 x 3^3 nm
Stellar (nuclear)	Triple-alpha bridge	Triple-alpha resonance	432 as lattice connector
Galactic	Inner sphere diameter	432 x 10^7 km = 4,320,000,000 km	432 = 2^4 x 3^3

Galactic Tau-time anchor: 864^2 = 2^10 x 3^6 = 746,496. Galactic spin orbital: K^2 = 2^14 x 3^10 = 967,458,816. Galactic spin period = 86,400 x K = 2,687,385,600 s = K days (the cascade constant K is itself the galactic spin period in days). Galactic inner sphere diameter = 86,400 x 50,000 = 4,320,000,000 km = 432 x 10^7 km.

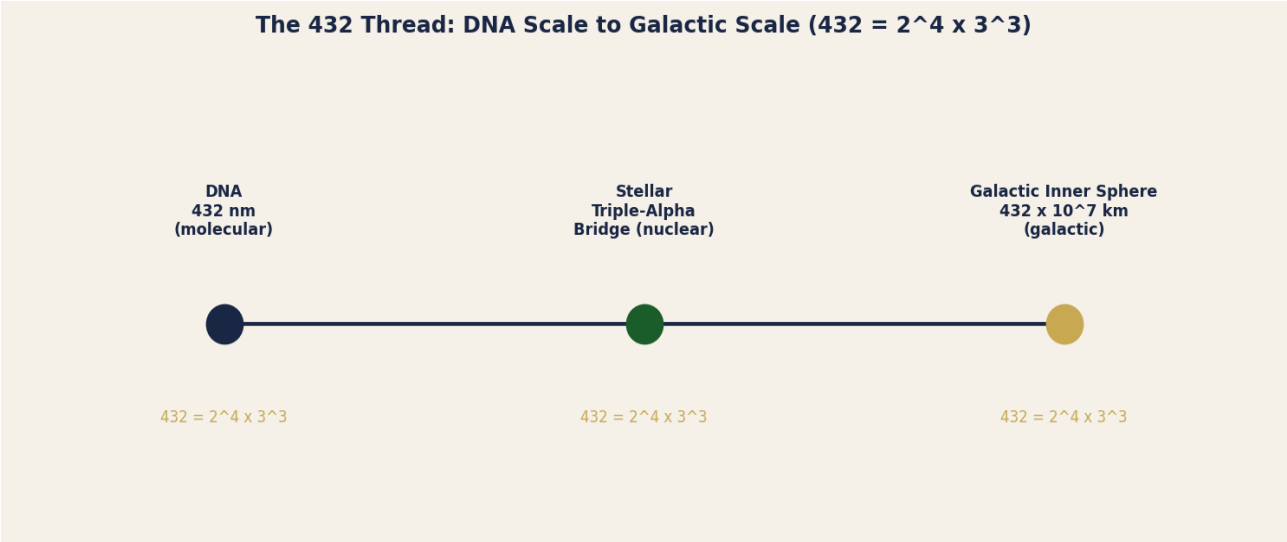

Figure 2. The 432 Thread: DNA scale (432 nm molecular), stellar nuclear bridge, galactic inner sphere (432 x 10^7 km). 432 = 2^4 x 3^3 connects all three scales without free parameters.

7. Registered Propositions P-GBLK-1 through P-GBLK-9

P-GBLK-1

The dimensional hierarchy of Tau-nodes extends to four levels. Higgs (subatomic, Tau = 1/K), atomic nucleus (atomic, Tau = 1), Sun (celestial, Tau = K), galactic black hole (Tau = K^2). K = 31,104 = 2^7 x 3^5. K^2 = 2^14 x 3^10. The black hole is the fourth level of the cascade, not a breakdown of physics.

P-GBLK-2

The spiral galaxy's two arms are the positive (matter) and negative (antimatter) Tau-strands at galactic scale. The two arms wind in the same {2,3,5} helical ratio r = 5^6 / (2^6 x 3^5) = 15,625/15,552 confirmed at DNA scale and in Mercury's orbital precession. Spiral galaxies are helical at every scale because Tau is helical at every scale.

P-GBLK-3

The galactic black hole is the Tau-origin at galactic scale. Stars are stationary Tau-nodes through which the galactic Tau-sphere sweeps on its outward propagation. The black hole generates Tau at rate K^2. It does not consume matter.

P-GBLK-4

The event horizon is the dimensional transition boundary at galactic level. Inside: Tau flows at rate K^2. Outside: Tau flows at rate K. Apparent impossibility of escape = dimensional Tau-flow rate incompatibility, not a geometric trap.

P-GBLK-5

The accretion disk is the galactic Tau-equalization surface, held flat by Tau-tension at galactic scale exactly as the ecliptic is held flat at celestial scale. Its flatness is the signature of Tau-equalization extended to galactic dimensions, not gravitational flattening.

P-GBLK-6

The bipolar AGN jets are directional Tau-emission along the galactic Tau-axis. Equatorial component creates spiral arms; polar component creates jets. Jets are galactic Tau propagating from the Tau-origin outward through both poles simultaneously.

P-GBLK-7

Information crossing the event horizon is not destroyed; it is dimensionally translated from celestial Tau-register (K) to galactic Tau-register (K^2). Tau-flow rate changes by factor K = 31,104. d-Sigma-Tau = 0 at every level. Information is conserved across all dimensional boundaries.

P-GBLK-8

The galactic black hole is the single point in our observable universe where all four dimensional Tau-levels are simultaneously present: Higgs (1/K), atomic (1), stellar (K), galactic (K^2 = 2^14 x 3^10). All four registers converge at the galactic Tau-origin.

P-GBLK-9

Galactic Tau-time anchor: 864^2 = 746,496. Galactic spin period = 86,400 x K days. Galactic inner sphere diameter = 432 x 10^7 km. The 432 thread (2^4 x 3^3) connects DNA scale (432 nm) through stellar to galactic scale without free parameters.