

Title:

Debunking the Black Hole Myth: From Gravitational Singularity to Logical Oscillator

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Abstract:

This article debunks the classical myth of black holes as gravitational singularities by integrating recent astrophysical findings with the New Subquantum Information Mechanics (NMSI) model. We present black holes as Central Logical Oscillators (CLOs) in antiphase resonance with baryonic space, inherently invisible due to their oscillatory cloaking rather than due to event horizon trapping. New high-precision models based on post-Minkowskian expansions, Calabi-Yau manifolds, Fourier transform methods, and Fibonacci-resonant dynamics support this reinterpretation. The structural coherence and predictive oscillatory behavior of such entities reaffirm that reality is governed by informational harmonics, not chaotic gravitational collapse.

Keywords:

Black holes; CLO; Subquantum oscillations; Fourier transform; Calabi-Yau; Antiphase gravity; NMSI; Post-Minkowskian; Fibonacci resonance; Gravitational logic

1. Introduction: Cracks in the Black Hole Paradigm

The classical view of black holes as regions of infinite gravitational collapse—defined by singularities and event horizons—has dominated astrophysical and cosmological discourse for over a century. Rooted in Einstein’s theory of general relativity, the standard black hole model envisions these objects as endpoints where spacetime curvature becomes infinite, matter is crushed beyond comprehension, and known physics breaks down. Yet, despite the

mathematical elegance of this formulation, multiple paradoxes have persisted, exposing theoretical fractures in the prevailing paradigm.

Among these unresolved issues is the well-known information loss paradox, which posits a contradiction between general relativity and quantum mechanics: if information that falls into a black hole is truly lost, it violates unitarity in quantum theory. Additionally, the apparent non-radiative nature of black holes, along with their invisibility in the electromagnetic spectrum (except for indirect signs such as accretion disks and jet emissions), has posed interpretative challenges.

Recent advances in observational astrophysics and mathematical physics have intensified these concerns. The landmark detection of gravitational waves by LIGO, and the first imaging of a black hole's event horizon by the Event Horizon Telescope, have shifted the discourse from speculative general relativity to data-grounded modeling. In a pivotal 2024 study published in *Nature* and popularized through *Space.com* (May 14, 2025), a consortium of physicists employed quantum field theory—not general relativity—to construct an ultra-precise model of black hole interactions. Through a meticulous buildup of complexity—reaching the fifth post-Minkowskian (5PM) order—they accurately computed the trajectories, deflections, recoil dynamics, and gravitational radiation of binary black hole encounters.

The implications of this work are profound. First, it reveals that black hole interactions, far from being chaotic singularities, obey a structured and analyzable logic governed by high-order mathematical formalism. Second, it underscores a shift in the nature of modeling itself: away from spacetime curvature and toward interaction fields, frequency dynamics, and perturbative hierarchies.

These developments resonate with the framework proposed by the New Subquantum Information Mechanics (NMSI), which discards the notion of gravitational collapse in favor of subquantum oscillatory coherence. In the NMSI model, black holes are not regions of destruction, but rather self-organizing nodes of coherent oscillations—referred to as Central Logical Oscillators (CLOs)—in permanent antiphase with the baryonic reality surrounding them. Their invisibility is not due to the presence of an event horizon but results from phase opposition, which renders their oscillatory emissions incoherent with baryonic detectors.

This paper seeks to reconcile these emerging observations and models with the NMSI perspective. It argues that the classical myth of the black hole as a spacetime singularity is not only physically inconsistent but also theoretically obsolete. In its place, we propose a coherent structural model of black holes as oscillatory antifase systems, embedded within a subquantum lattice governed by logical informational rules rather than relativistic collapse.

In doing so, we align with a broader scientific evolution—from geometry to logic, from collapse to coherence, and from chaos to resonance. The goal is not to merely revise black hole theory but to recontextualize it within a larger paradigm of informational cosmology, where structure, dynamics, and evolution emerge from the harmony of oscillatory systems rather than the rupture of singularity.

2. CLOs as the Oscillatory Cores of Gravitational Architecture

The concept of Central Logical Oscillators (CLOs) lies at the heart of the NMSI framework, offering a new ontological category that predates both matter and field. CLOs are defined not by mass or curvature, but by informational coherence and phase resonance. They function as localized nodes within the subquantum lattice, maintaining coherence over time and transmitting oscillatory patterns that govern both the behavior of surrounding baryonic matter and the structure of spacetime-like phenomena.

In traditional physics, gravitational architecture is defined by geodesics in curved spacetime, determined by mass-energy tensors. However, in the NMSI model, gravity is not a curvature of spacetime but a *logical drift* induced by differential phase coherence between CLOs. A black hole, under this reinterpretation, is a macroscopic CLO whose oscillatory signature enters into permanent antiphase with the baryonic environment, thereby producing a region of apparent non-interaction—what we mistakenly interpret as an event horizon.

Crucially, these entities do not represent regions where physics breaks down, but rather where a different kind of physics becomes dominant: that of subquantum logic. They are stable attractors in the phase field of reality, resonant cores where informational order overwhelms entropic fluctuation. Their primary properties include:

- **Oscillatory phase lock:** CLOs maintain a specific resonance frequency that aligns or opposes the oscillatory fields around them.
- **Coherence radius:** Each CLO influences its surroundings up to a calculable boundary beyond which oscillatory interference breaks phase synchrony.
- **Antiphase invisibility:** When a CLO's frequency is in total antiphase with a baryonic observer, its radiation becomes undetectable due to destructive interference.

This new definition permits a unification of phenomena previously separated in astrophysics: black holes, dark matter cores, galactic centers, and gravitational lensing regions all become manifestations of the same underlying subquantum architecture. Observationally, this explains why we consistently find massive, invisible objects at galactic centers that influence stellar motion without emitting detectable light — these are not mass sinks but phase locks.

Thus, black holes, far from being endpoints of gravitational collapse, are elevated to the status of organizational cores in a dynamic, oscillatory universe. They are not gravitational anomalies, but harmonic stabilizers—nodes of coherence that regulate the flow of information and energy throughout the cosmos.

Section 3: Fourier Transform as the Bridge Between Reality and Phase Logic

In both classical signal analysis and modern physics, the Fourier Transform (FT) serves as a powerful tool to translate signals from the time domain into the frequency domain. However, in the framework of New Subquantum Information Mechanics (NMSI), this mathematical operation takes on a deeper ontological role. It becomes not just a tool of analysis, but a metaphysical bridge that links observable phenomena with their underlying oscillatory substratum.

From the perspective of NMSI, reality is fundamentally built upon subquantum oscillations—nonlocal, phase-coherent fluctuations of logical information that precede space, time, and matter. These oscillations manifest in baryonic reality as particles, forces, and fields when they enter into resonance or coherence with the detection framework of a given observer. The Fourier Transform provides a structured window into this process: it decomposes apparently chaotic time-evolution into regular patterns of frequency, revealing the hidden harmonics of interaction.

In the case of black holes reinterpreted as CLOs, the Fourier Transform offers a crucial insight: the emitted signals from these objects may exist, but in frequency bands that are phase-inverted or spectrally shifted outside the reception capacity of baryonic detectors. If the subquantum oscillator composing the CLO is out of phase with baryonic instruments, its radiation becomes spectrally decoherent—rendering it observationally invisible.

The invisibility of black holes, therefore, is not due to an absolute event horizon, but rather to spectral orthogonality: a condition wherein the waveform of emission lies in an incoherent Fourier basis with respect to the observer's frame. This can be mathematically represented by phase cancellation or by orthogonal projection in Hilbert space:

$$\langle \psi_{\text{CLO}}(t), \varphi_{\text{observer}}(t) \rangle = 0$$

Where $\psi_{\text{CLO}}(t)$ is the emitted subquantum waveform, and $\varphi_{\text{observer}}(t)$ is the detector's receptive state.

Furthermore, the resonance bands of a CLO, when expressed in the frequency domain, may reveal predictable structures such as harmonics, subharmonics, or phase bifurcations. These structures allow for an entirely new mode of black hole detection—not via electromagnetic signals, but via Fourier-based oscillatory signatures. This is particularly relevant when examining periodic gravitational waves, as the waveform morphology often encodes information about the inner resonance state of the source.

Recent gravitational wave data, analyzed using Fourier methods, already reveals quasi-periodic patterns and chirp signals that correlate with specific dynamical parameters of merging black holes. In NMSI, these signals are interpreted not as by-products of spacetime warping, but as phase transitions within oscillatory logic systems—an interpretation that links Fourier decomposition directly to the logical evolution of CLOs.

Ultimately, the Fourier Transform in NMSI is a tool not just for decoding signals, but for mapping the fundamental architecture of subquantum reality. It demonstrates that what we perceive as matter, gravity, or radiation are emergent phenomena resulting from specific spectral configurations of logic-based oscillations. And in the case of black holes, it offers a rigorous explanation for both invisibility and coherence: they radiate, but in spectra and phases we have not yet learned to interpret.

4. Calabi–Yau Manifolds and the Hidden Topology of CLOs

One of the most sophisticated tools emerging from string theory and higher-dimensional topology is the concept of Calabi–Yau manifolds—compact, complex spaces that preserve supersymmetry by allowing for consistent dimensional reduction in theories with more than four spacetime dimensions. Traditionally, these structures are invoked to explain how six extra spatial dimensions may be compactified into stable geometries, invisible at macroscopic scales yet crucial for the fundamental structure of reality.

In the context of NMSI and the reinterpretation of black holes as Central Logical Oscillators (CLOs), Calabi–Yau manifolds provide an indispensable geometric analogy. Rather than representing curled-up physical dimensions, they are seen here as topological signatures of informational coherence. Their folded geometry mirrors the nested resonances that define the core structure of a CLO, especially when the CLO is operating in a high-coherence antifase state.

These manifolds, with their toroidal and multi-cyclic symmetries, can be understood as the “spatial harmonics” of a logical oscillator: the blueprint for phase relationships that sustain resonance across multiple dimensions of oscillatory information. In fact, the multidimensional complexity of a Calabi–Yau shape corresponds directly to the internal phase structure of a CLO — a structure that governs its capacity to absorb, emit, and transform information across spectral bands.

Mathematically, the relevance of Calabi–Yau topology emerges in the context of moduli spaces, holomorphic forms, and Ricci-flat metrics — all features that describe equilibrium in multidimensional information flows. A CLO in equilibrium is a local minimum in its logical moduli space, stable against perturbation due to the Ricci-flat curvature of its informational structure.

This analogy leads to a fundamental reinterpretation of the role of geometry in physics: geometry is no longer merely the container of physical entities, but the expression of internal coherence within phase information systems. In particular, the hidden nature of Calabi–Yau manifolds aligns perfectly with the observational invisibility of CLOs: both exist, both exert profound influence, and both remain outside direct baryonic detection due to their structural orthogonality.

Additionally, Calabi–Yau manifolds often display hexagonal and quasi-crystalline symmetry, which aligns with observed hexagonal structures in astrophysical and planetary systems — from the hexagon on Saturn’s pole to lattice-like structures in the cosmic web. This reinforces the hypothesis that such symmetry arises from resonance principles embedded in the geometry of subquantum oscillators.

In conclusion, Calabi–Yau manifolds are not invoked in the NMSI framework as metaphysical scaffolding but as structural metaphors for the resonant architecture of

CLOs. They serve as the geometrical embodiment of high-coherence antiphase states — not curled dimensions, but harmonic containers. Thus, black holes, as antiphase CLOs, are topologically structured entities whose internal architecture is more akin to a resonating Calabi–Yau space than to a collapsing singularity. This topological shift in perspective represents a fundamental evolution in our understanding of space, structure, and the deep logic of the cosmos.

Section 5: Fibonacci Harmonics and the Golden Ratio in Gravitational Fields

One of the most ubiquitous patterns in natural systems—spanning from biology to astrophysics—is the Fibonacci sequence and its associated Golden Ratio ($\varphi \approx 1.618$). Traditionally studied in the context of aesthetics, phyllotaxis, and biological growth, these ratios are increasingly being recognized for their role in cosmic structuring. In the NMSI framework, such ratios are not merely coincidences of natural optimization but expressions of deep **oscillatory resonance logic** that governs all levels of organization in the Universe.

When black holes are reinterpreted as antiphase CLOs, their interactions with surrounding matter do not follow chaotic accretion or destruction patterns, but rather convergent resonance pathways. The spiral arms of galaxies, the harmonic structure of accretion disks, and even the helicoidal forms seen in relativistic jets all display spacing and angular distributions closely approximating Fibonacci-derived ratios. These are not arbitrary — they are the **physical manifestation of informational resonance**.

The Golden Ratio emerges as the asymptotic limit of the ratio between successive Fibonacci numbers:

$$\left[\lim_{n \rightarrow \infty} \frac{F_{n+1}}{F_n} = \varphi \approx 1.618 \right]$$

In oscillatory systems, this ratio signifies the **most efficient packing and stabilization** of phase harmonics — a dynamic equilibrium that minimizes energetic dissipation while maximizing structural coherence. Applied to CLOs, it implies that their internal oscillatory structure tends toward φ -distributed phase locking, which optimizes their interaction with ambient subquantum fields.

Furthermore, the Fibonacci sequence also governs bifurcation patterns in nonlinear systems — a behavior mirrored in the splitting of Fermi bubbles, galactic jets, and black hole precession cycles. The appearance of quasi-periodic bursts in pulsars and quasi-normal modes in gravitational waveforms may also adhere to Fibonacci constraints, hinting at a unifying harmonic substrate.

Within the NMSI model, gravitational fields are not continuous warps in spacetime, but discrete logical interactions between nested oscillators. CLOs that follow Fibonacci-based resonance structures impose **spatial quantization** on their surroundings, which is observable as concentric rings, harmonic spacing in planetary systems, or quantized redshift in galaxy clusters. These phenomena, often treated as anomalies, may be predictable outcomes of a Golden Ratio-governed oscillatory logic.

The convergence toward φ is, therefore, a **signature of coherence** — one that signals an oscillator's alignment with universal resonance. This understanding demystifies the 'order in chaos' frequently observed in astrophysical systems and challenges the stochastic interpretations of galaxy formation and black hole dynamics.

The Golden Ratio also plays a crucial role in phase transition thresholds within oscillatory logic systems. For example, a CLO's transition from visible to invisible (baryonic-phase to antiphase) may occur when internal harmonic ratios shift through a Fibonacci bifurcation point. This hypothesis, though speculative, could explain certain abrupt phase-state changes observed in quasars and AGN jets.

In summary, the presence of Fibonacci harmonics in gravitational and astrophysical contexts is not merely aesthetically pleasing—it is a diagnostic marker of phase coherence in subquantum systems. CLOs, as black hole analogues, are not chaotic devourers of matter but **architects of harmony**, building space-time structures according to golden proportion laws rooted in subquantum information dynamics.

6. Conclusions: Black Holes as Cosmic Governors, Not Monsters

The culmination of evidence presented in the NMSI framework points toward a radical, yet harmonically consistent, reinterpretation of black holes. Far from being destructive singularities or dead ends in physical law, they emerge as structured, information-governing entities—Central Logical Oscillators (CLOs)—embedded in a universe defined by logical coherence rather than gravitational chaos.

This shift in paradigm dissolves the long-standing paradoxes associated with black holes. The loss of information is no longer a mystery once one recognizes that information does not vanish, but transitions into a non-baryonic, logically structured phase field. Similarly, invisibility is no longer a product of infinite curvature and photon trapping, but a result of antiphase interactions—spectral decoherence and orthogonal emission—relative to baryonic detectors.

Black holes, viewed as antiphase CLOs, regulate the structure and behavior of the space surrounding them by imposing phase coherence. This explains the stability of accretion disks, the orientation of relativistic jets, and even the synchronization of galactic halos. These are not incidental by-products of collapse but expressions of a deeper logic embedded in the subquantum field.

Importantly, this redefinition does not contradict existing observational data; rather, it integrates such data into a more complete, logically cohesive framework. The gravitational waves recorded by LIGO, the image of the M87 black hole, and the post-Minkowskian modeling of binary black hole encounters all reinforce the idea that black holes are not chaotic anomalies but are, instead, coherent and predictable systems governed by resonance.

Even the most abstract mathematical tools—such as Calabi–Yau manifolds and Fourier transforms—are no longer esoteric luxuries but necessary instruments for decoding the internal logic of the universe. They offer direct insight into the resonance structures that define reality, with black holes as nodal amplifiers of this underlying logic.

The philosophical implications are equally profound. If black holes are not voids but vibrational centers of order, then the universe itself is not a battlefield of collapsing stars and dissipating matter, but a harmonic organism, governed by logical coherence at every scale. This perspective invites a new scientific ethos: one rooted not in fear of the unknown but in exploration of the knowable structure of subquantum harmony.

Thus, black holes are not monsters lurking in the abyss of spacetime; they are governors—dynamic, invisible nuclei of structural logic, maintaining balance and transmitting coherence across the universe. Their mystery is not one of chaos, but of encrypted harmony awaiting our decoding.

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