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Cosmology da the Dead Universe Theory (DUT): The Dead Universe Theory (DUT) and the Asymmetric Thermodynamic Retraction of the Cosmos

By Joel Almeida

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In this framework, what we perceive as "the universe" is embedded within a structural black hole, composed of exotic second-layer dark matter — a gravitational topology–unlike anything described by classical cosmology. Unlike the Schwarzschild-type singularities predicted by general relativity, these structural black holes do not form from stellar collapse but from the internal thermodynamic decomposition of an ancestral cosmos trillions of times larger than our own. The DUT proposes that the observable universe is not expanding, but retracting — dissolving asymmetrically from the edges inward, driven by entropy, not inflation.

This paradigm offers gravitational and thermodynamic coherence while avoiding the speculative mechanisms of multiple theories, wormholes, and exotic inflation fields. It interprets the cosmological red shift, cold spots in the cosmic microwave background, and the early appearance of super massive black holes not as anomalies but as expected consequences of a collapsing background structure.

"The universe is not expanding; it is retracting: returning to its dark and silent nature, like a watermelon that rots from the rind inward, briefly preserving a still-luminous core."

— J. Almeida

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Almeida, J. (2025, May). The universe inside a structural black hole: The theory of the dead universe, the definition of a universe in retraction, and not in continuous expansion.

I. Introduction – The Observable Universe as a Cosmic Anomaly of the Dead Universe

This article is the result of more than two decades of dedicated research on the origin of the universe, conducted from the perspective of cosmology, while also integrating insights from metaphysics, philosophy, and contemporary epistemology. It represents an attempt at conceptual unification, combining science, speculative reason, and observation, in search of a model that transcends the traditional boundaries of the inflationary paradigm.

The Dead Universe Theory (DUT), presented here in its most comprehensive formulation, offers a deep revision of modern cosmology by proposing a new framework for the observable structures of cosmos and their thermodynamic, gravitational, and existential implications. In the framework of the Dead Universe Theory (DUT), what we observe today with the James Webb Space Telescope (JWST) is not the absolute beginning of the universe but rather the thermal residue of an emerging anomaly that has been decaying since its first moment. The observable universe is not expanding, it is decaying. When it reaches its final stage of entropy, it will neither collapse nor explode but will be silently reabsorbed into the original dark field, much like the skin of a living organism heals after the retraction of a blister. [1] [47]

Originally reformulated in the article published in the Global Journal of Science Frontier Research, entitled "Astrophysics in the Shadows: The Dead Universe Theory, An Alternative Perspective on the Genesis of the Universe - DOI: https://doi.org/10.34257/GJSFRAVOL24IS4PG33" (2024), the Dead Universe Theory (DUT) presents a rigorous theoretical alternative to inflationary and expansionist cosmologies. It proposes a gradual reduction of the universe rather than a continuous expansion. The theory outlines a slow, silent, progressive, and thermodynamically asymmetric gravitational collapse that emerges from a preexisting dark cosmic structure. Within this framework, decayed remnants of an ancient universe give rise to observable cosmos as a photonic anomaly, a localized bubble of thermal and gravitational deviation, formed inside a structural black hole. [2]

The theory proposes several key predictions. Galaxies may continue to form as a kind of cosmic memory, not emerging randomly, but is influenced by remnant structures and gravitational tensions of the decaying dark framework. Some galaxies arise from the final energetic pulses of a universe that, although dying, still possess sufficient internal complexity to generate new stellar systems. The observable cosmos may not be expanding from a singularity, but manifesting instead as a residual echo of a preexisting and already collapsed universe. Over time, natural decay led to a gradual reduction in the galactic scale, with structures disintegrating under the gravitational influence of the ancient substrate. The universe enters a state of irreversible decline, in which new galaxies are transient and eventually dissolve, returning to the fabric of the dead universe. [2][4]

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a) Proposed that a closed universe could be mathematically equivalent to the interior of a Schwarzschild black hole

Proposition "The Universe Inside a Structural Black Hole' A Foundational Distinction from Earlier Cosmological Ideas.

R. K. Pathria (1972):

- His model was purely geometric, with no physical modeling of the collapse, entropy, or thermodynamic processes.
- Did not propose a prior or "dead" universe nor any asymmetric entropic retraction.
- There was no discussion of dark matter, dark energy, or observational anomalies.

Nikodem Popławski (2010):

- This suggests that black holes could generate "baby universes" via quantum torsion (Einstein–Cartan theory).
- Proposed a cyclical reproductive model which are each black hole spawns a new universe.
- The parent universe remains active and there is no notion of cosmological death.
- It is a living progenitor and is not a decaying remnant.
- The thermodynamic and entropic aspects of the cosmic origins have not been addressed. [28][29][30][33][34][35][36][37][38][39][40]

b) The Originality of the DUT – Dead Universe Theory

Core Proposition:

- Our observable universe is the active entropic remnant of the final collapse of a far greater ancestral universe — the "Dead Universe."
- The primordial universe was trillions of times larger and was composed of dark matter and theoretical particles, such as the unoscillating neutral object (UNO).
- The DUT rejects the expansion paradigm, proposing that the redshift results from thermodynamic retraction rather than spacetime inflation.
- This reinterprets light as a cosmic anomaly and not as a fundamental constant.

Exclusive Innovations:

- The introduction of a new particle (UNO), unlike any previously theorized particle.
- Definition of a structural black hole as a cosmogenetic matrix, not merely a gravitational object.
- Application of asymmetric gravitational thermodynamics as an engine of cosmogenesis.
- Draws parallel with stellar death: The universe as a cosmic corpse still radiates echoes of its former state.
- How such a "parent universe" might have emerged
- How a black hole can generate a new universe?
- How does it would violate its own gravitational laws to expel matter?"

These fundamental questions must be addressed before mobilizing the scientific community with unfounded proposals. [28][29][30]

The theory discussed here suggests that the universe, with its physical laws and evolution, could be contained within the event horizon of a black hole, a region of spacetime from which not even light can escape. However, earlier versions of this hypothesis claim that light escapes through a wormhole, enabling the formation of an observable universe. Such a claim, besides being highly implausible, lacks scientific verifications. Accepting this would require a complete violation of core principles in contemporary physics, thereby undermining its legitimacy.

In contrast, the Dead Universe Theory presents a coherent mathematical model that is empirically testable using data from the James Webb Space Telescope and is fully compatible with Hubble's laws. Although the notion that black holes generate universes lacks observational support, Dead Universe Theory is grounded in the logic of modern astrophysics. Black holes are structures that consume matter and do not create it. As Koch and Saueressig affirm, asymptotically safe black holes evaporate completely, and no plank-sized remnant is formed. [3][4][11][28][29][30]

However, there is no mention of a "parent universe" in the original article. Pathria did not state that "the universe is inside a black hole," much less so that this black hole is part of a pre-existing universe. [1][2][3][4][6][18][28][29][30]

The claim that the entire universe resides inside the black hole of another universe does not appear, as far as the peer-reviewed scientific literature allows us to assert, in any article by Pathria, Good, or Popławski. When such an idea appears in non-specialized publications, it is an interpretative extrapolation that is not supported by original sources. [5][6]

The universe can be interpreted as a region of space-time analogous to the interior of a Schwarzschild black hole, but this does not imply a physical connection with an external universe.

The proposal (DUT) states that the observable universe emerged as an anomaly within the cosmic fabric of a real black hole, identified as the Dead Universe. For this reason, the observable universe is described as a remnant of the gravitational collapse of a much older, previous universe. This black hole is not of the stellar type, such as those considered by Popławski, Pathria, or Good, but rather a cosmological black hole formed by the collapse of an entire dead universe. This collapse created detectable anomalies in its cosmic fabric, composed of dense dark matter that was distinct from the dark matter of the observable universe, which became lighter because of the effects of collisions resulting from this great event. [5] [6]

This black hole is identified as the Dead Universe, a dark, dense, and functionally persistent cosmic fabric within which the observable universe is provisionally housed as an internal anomaly in a minuscule portion of the Dead Universe.

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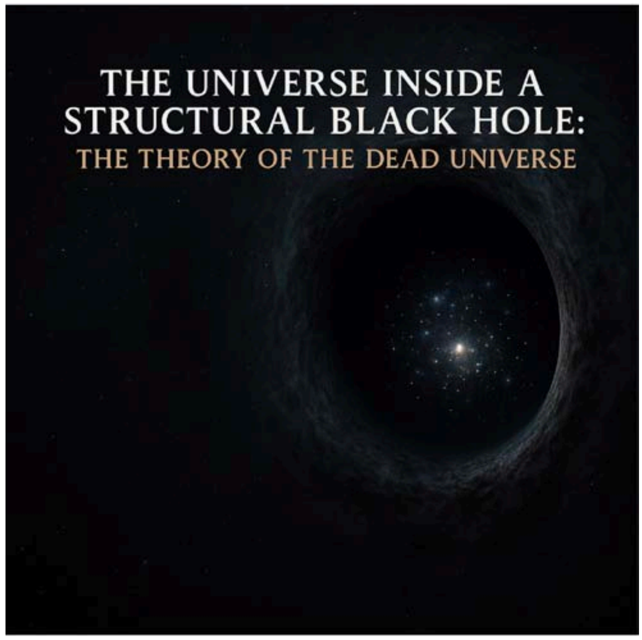

Figure 1: This image conveys which words alone may fail to express. This illustrates why this cosmological model is both unsettling and profound, perhaps because in the end, it may be the only framework that truly integrates the legacy of everything built by the greatest minds in the history of astrophysics. According to this model, the observable universe is no more than a grain of sand embedded within a structural black hole—surrounded by the dense cosmic fabric of a de universe composed of ultra-heavy dark matter, extending toward an infinite horizon. (credit image: Open Access Library Journal)

The anomaly that constitutes the observable universe did not escape the internal causality of the black hole but rather formed on the inner surface of the event horizon, or very close to it, in a boundary regime where causality still allows for local dynamics. This resolves the ontological issue of causal transition, as the observable universe is a functional bubble that never leaves the larger system to which it belongs.

Therefore, the hypothesis establishes a direct physical continuity between the collapse of a universe that generates an anomalous extension while still remaining the same universe. It does not propose that the observable universe exists inside the black hole of another universe. Instead, this anomaly of the Dead Universe, referred to as the observable universe, is housed within the black hole, very close to the causal surface of this primordial universe, like a grain of sand buried on the surface of Jupiter. This is done without resorting to unobserved forces or fields remaining within the known laws of general relativity and thermodynamics.

The observable universe is merely a part of the deformed fabric of the Dead Universe, but it remains an integral part of the real structure of the primordial cosmos and not a mathematical abstraction. Its detection, although challenging, may become possible through indirect observable effects, such as gravitational distortions, thermodynamic signatures, or anomalies in the cosmic microwave background.

"*Black holes are not the end. They are windows into the deepest truths of the universe — where gravity, quantum mechanics, and thermodynamics converge.*"

— Jacob D. Bekenstein [1][2][3][4][18][28][29][30]

The purpose of this alternative cosmological hypothesis, the Dead Universe Theory, is not to center the model on the idea that the universe resides within a black hole. Rather, it presents a scientific research proposal committed to the rigor required of a cosmological model aligned with general relativity, quantum physics, and Hubble's law. Violating these fundamental principles compromises the credibility of scientific theories.

Since the James Webb Space Telescope began deepening its observations in search of new data to validate theories and equations, media sensationalism has obscured the work of many astrophysics researchers. Recently, the press reported studies on galaxy rotation based on James Webb data, and sensationalism quickly overtook the discussion, highlighting the hypothesis that we might be living in a "matrix" within another universe. However, science does not progress through media declarations but through the rigorous construction of testable models. [28][29][30][33][34][35][36][37][38][39][40]

c) Formation of Stellar Black Holes Within Structural Black Holes: A New Cosmological Perspective Proposed by the Dead Universe Theory (DUT)

The possibility that black holes may exist within other black holes, as postulated by the Dead Universe Theory (DUT), challenges classical cosmological intuitions yet offers a coherent alternative to the limitations of the inflationary model. If we succeed in identifying gravitational structures composed of dense dark matter with specific topological properties, it may become possible to observe stellar black holes forming within these so-called "structural black holes," as defined in this article.

When two black holes merge, the result is typically the formation of a single, larger black hole, which, according to classical understanding, precludes the coexistence of an internal secondary entity such as independent stellar-mass black holes. This is due to:

- Presence of a single singularity, as proposed by the standard model
- The absence of an internally stable structure capable of supporting gravitational compartmentalization.

However, by introducing the hypothesis of a structural black hole, as formulated by the Dead Universe Theory (DUT), which is composed of a second species of ultra-dense dark matter, it is proposed that multiple gravitational entities, such as secondary supermassive black holes, could exist within its interior without undergoing immediate fusion.

Unlike known stellar black holes, this structure would be stabilized by an anisotropic gravitational field, allowing for the coexistence of multiple collapsed systems within a closed space-time environment, without necessarily converging into a single singularity, as predicted by the standard model.

d) Mathematical Model of Internal Gravitational Compartments within a Structural Black Hole

To explain how multiple massive entities (such as secondary supermassive black holes) can exist within a single structural black hole without immediate fusion, we introduce a modified gravitational potential and an anisotropic field structure.

Let a(r) be the effective radial acceleration of an internal collapsed mass m(r) at distance r from the structural center.

$$a(r) = -[G * M(r)] / r^2 + \partial \Phi\_anom(r) / \partial r$$

Where:

G is the gravitational constant,

M(r) is the total mass enclosed within radius r,

Φ_anom(r) is the anomalous potential induced by the exotic dark matter fabric of the structural black hole.

To model gravitational compartments (non-merging zones), we define

$$\Phi\_anom(r) = \beta * \exp(-\alpha * r) * \cos(\kappa * r)$$

Where:

β is the amplitude of the internal gravitational fluctuation,

α is the decay coefficient related to entropic dissipation,

κ is the topological frequency associated with the anisotropy of dark fabric.

In this framework, stable local minima in Φ_anom(r) permit quasi-stable gravitational pockets, enabling massive objects to temporarily reside within the structure without collapsing into a central singularity.

Such a configuration supports the DUT hypothesis that stellar and supermassive black holes may form and persist within a larger, nonsingular gravitational entity — the structural black hole.

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Figure 2: This figure offers an alternative perspective, in which the observable universe is positioned near a supermassive black hole, hypothetically embedded within the same structural black hole that contains it. This configuration can influence the separation of galaxies and explain the presence of smaller supermassive black holes within the cosmos. The larger ones, in turn, would be located beyond the observable horizon, deep within this dark structural field. (credit image: Open Access Library Journal)

This simulation proposes that the retraction of galaxies is not caused solely by the presence of a central supermassive black hole, but rather results from a set of internal structural influences on the larger structural black hole that contains the observable universe. Among these influences are the following.

- Presence of other secondary supermassive black holes.
- Gravitational interactions with dense and exotic dark matter composing the fabric of the dead universe.
- Possible dynamic effects associated with collapsed bodies or residual matter flow.

In this context, all luminous matter may undergo a gradual cooling process and loss of physical identity before being absorbed by the entropic dark substrate, completing a cycle of asymmetric and silent dissolution.

The hypothesis of natural separation of galaxies is consistent with the principles of general relativity. If the structural black hole is significantly larger than the observable universe, as proposed by the Dead Universe Theory (DUT), it may exert a far-reaching gravitational field whose intensity increases as galaxies approach the structural center. In this model, what is currently interpreted as the accelerated expansion of the cosmos may, in fact, be the effect of differential gravitational retraction, where the apparent motion between galaxies increases due to the growing curvature of space-time within the inner boundaries of the structural black hole.

As the observable universe decays gravitationally, galaxies, photons, and cosmic structures lose energy, identity, and luminosity, and are gradually reabsorbed into the dark substrate that constitutes the structural black hole. This process does not involve explosive collapse or thermal freeze-out but rather involves slow and asymmetric entropic dissolution.

Space-time softens, the curvature sustaining the photonic bubble yields, ultra-dense dark matter (the UNO substrate) gradually reabsorbs luminous matter, photons dissolve, light dissipates and merges with the remaining cosmic background radiation, and proper time slows down, leading internal observers to experience a progressive shutdown of thermal time.

e) Mathematical Model for Accelerated Gravitational Retraction (DUT Framework)

$$a(r) = -G \cdot M(r)/r^2 + d\Phi\_anom(r)/dr$$

Where:

where, G is the gravitational constant.

M(r) is the mass enclosed within radius r.

Φ_anom(r) is an anomalous gravitational potential associated with the dark structure and geometry of the Dead Universe, specific to the DUT framework.

Note:

The derivative of Φ_anom(r) can produce a positive acceleration term.

$$d\Phi\_anom(r)/dr \approx +H \cdot r$$

(simulating a reversed Hubble-like effect under a gravitational retraction scenario).

Interpretation:

The relative separation of galaxies would not result from the expansion of space, but from an internal gravitational gradient induced by the topological structure of the massive black hole that encloses the observable universe.

Exploratory Hypothesis on Structural Black Holes and Phase Transitions in the Primordial Universe

This hypothesis proposes the existence of a structural black hole, defined as a topological deformation in the fabric of hyperdense dark matter, a remnant from the previous stage of the universe (referred to as the "collapsed primordial universe"). This hypothetical structure would differ from both supermassive and stellar black holes in its non-stellar origin and its potential role in generating gravitational anomalies, which could allow for the inference of the non-trivial properties of dark matter. This idea aligns with the emergent gravity proposals (Verlinde, 2017) and topological geometry models associated with primordial cores that emit no direct electromagnetic radiation (Rovelli, 2004). [41] [42]

f) Black Holes as Observational Portals

Supermassive black holes (SMBHs) and stellar black holes act as extreme gravitational lenses, whose space-time curvature effects indirectly reveal the presence of exotic dense dark matter, as proposed in the Dead Universe Theory (DUT). Although the formation of stellar black holes does not directly depend on this component, their macroscopic evolution within the galactic medium is strongly influenced by the distribution and density of cold dark matter (CDM), as suggested by cosmological simulations (Feng et al., 2010). This hypothesis thus proposes that the continued existence and behavior of black holes reflect gravitational interactions with an underlying invisible structure — a "dark skeleton" of the observable cosmos. [43]

g) Cosmogonic Implications

The discovery of structural black holes supports the hypothesis that the observable universe emerges from the critical collapse of a primordial universe. In this scenario, anomalies triggered by a phase transition between the collapsed state and expanding universe would have established the initial conditions for:

Primordial nucleosynthesis

Formation of large-scale cosmic structures.

The emergence of quantum fluctuations has enabled life.

Authors such as Linde (2004) and Brandenberger (2017) have suggested that nonthermal phase transitions may have played a central role in pre-Big Bang scenarios. This proposal aligns with that view, but originates from a fully extinct universe, not from an isolated inflationary event. [44] [45]

h) Cosmic Anomaly: A Methodological Approach

The term "cosmic anomaly" refers to quantifiable deviations in Einstein's field equations that require the inclusion of new tensorial terms to describe the interaction between dark matter, vacuum energy, and the geometry of space-time. This approach resonates with modified gravity models (such as f(R) gravity by de Felice & Tsujikawa, 2010) and alternative geometrizations of dark energy. This new tensorial layer could simultaneously account for: [46]

Cosmic microwave background radiation.

Observed acceleration of the universe's expansion rate

Rotational asymmetries in the galaxies were identified in the JWST data (Shamir, 2023). [1]

i) Guidelines for Future Research

To validate this proposal empirically, it is essential to

Refine the classification of black holes (structural, supermassive, and stellar) based on spectral signatures, absence of electromagnetic emission, and anomalous gravitational patterns.

Develop Monte Carlo simulations that integrate cold dark matter (CDM) with non-conventional quantum inflationary models;

Data from the James Webb Space Telescope (JWST) and the forthcoming Laser Interferometer Space Antenna (LISA) were used to map regions of high gravitational density lacking visible sources.

j) Minimal Mathematical Framework: Metric Perturbation and Residual Structural Curvature

To formalize the hypothesis of the structural black hole, we start from a modified Schwarzschild metric with a perturbation term associated with the residual density of dark matter ρ_DE(r) inherited from a collapsed primordial universe:

$$ds^2 = -[1 - (2GM/r) + \boldsymbol{\varepsilon}\cdot f(r)]\, dt^2 + [1 - (2GM/r) + \boldsymbol{\varepsilon}\cdot f(r)]^{-1}\, dr^2 + r^2\, d\Omega^2$$

Where:

- $\boldsymbol{\varepsilon} \ll 1$ represents the intensity of a static structural perturbation;

- f(r) is a function modeling the topological effect of the previous collapse;

$\rho\_DE(r) = \boldsymbol{\rho_0} \cdot e^{(-\alpha r)}$ represents the radial decay of the inherited hyperdense dark-energy density.

The Einstein field equation with modified dark energy becomes

$$G\_{\mu\nu} + \Lambda g\_{\mu\nu} + \chi\_{\mu\nu} = 8\pi G\,(T\_{\mu\nu}\hat{}\{vis\} + T\_{\mu\nu}\hat{}\{DE\})$$

Where:

$\chi\_{\mu\nu}$ represents anomalous tensor terms generated by the presence of a structural black hole.

- $T\_{\mu\nu}\hat{}\{DE\}$ models the nonluminous and topological contributions from the previous universe.
- Λ can be reinterpreted as a residual curvature effect rather than a cosmological constant.

The scalar curvature R, nonzero in regions where $f(r) \neq 0$, may indicate a structure embedded in space-time, even in the absence of visible mass, interpreted as indirect evidence of collapsed structural cores:

$$R = -8\pi GT + R\_anomaly(\varepsilon, \alpha)$$

The distinction between the categories of black holes is not merely taxonomic, but rather a tool for exploring the interface between quantum gravity, topological structure, and observational cosmology. While fundamental questions about the origin of the universe remain open, the hypothesis of structural black holes offers a theoretical bridge between an already extinct ancestral universe and a decaying observable universe. Its investigation seeks not only to explain what we see but also what we have forgotten.

Observable Phenomenon	Potential Significance in Dead Universe Theory
Regions of extreme curvature without radiation emission	Evidence of structural black holes originating in the collapse of previos universe
Gravitational lenses without a compatible visible source	Optical effect caused by non-stellar structural cores
Rotational asymmetries in dark matter halos	Traces of persistent distortions in the topology inherited from the dead universe
Gravitational discrepancies in low-mass galaxies	Residual effects of unlocalized structural fields

Figure 3: Testable Predictions of the Structural Black Hole Hypothesis

k) *Extended Formalization of Collapse Dynamics and Particle Interactions*

To strengthen the mathematical foundation of the Dead Universe Theory (DUT), we propose a minimal operational framework for modeling the collapse dynamics of the ancestral universe and its transition into a structural black hole. This complements the perturbed Schwarzschild metric and the residual curvature terms presented in Section 1.10.

We begin by modeling the large-scale contraction of the previous universe using a decaying cosmic scale factor:

$$a(t) = a_0 \cdot e\hat{}(-\lambda t)$$

where λ is the decay constant that describes thermodynamic entropy accumulation, and a_0 is the initial scale of the dead universe. This is not an inflationary model but a thermodynamic dissipation curve that represents the fading geometry of a nearly infinite cosmic tissue.

The total mass-energy content of the dead universe decays accordingly.

$$M(t) = U_0 \cdot e\hat{}(-\lambda t)$$

where U_0 is the primordial energy density, which is consistent with the DUT interpretation of dark matter as a residual dense substrate. This collapsing fabric generates regions of local instability where the curvature reaches a critical threshold $\square\_c$, triggering the formation of structural black holes.

At such thresholds, the localized curvature transitions satisfy

$$\square(r, t) \geq \square\_c \quad \rightarrow \quad \text{Structural Collapse}$$

In this expression, $\square(r, t)$ includes both classical and anomaly-induced curvature components:

$$\square(r, t) = \square\_S(r) + \varepsilon \cdot f(r) + \alpha \cdot e\hat{}(-\beta r)$$

At the core of this framework is the UNO particle (Unobservable Neutral Origin), proposed as the fundamental constituent of the dense and exotic matter that constitutes the structural layer of the dead universe. Unlike traditional dark matter candidates, the UNO is not merely hypothetical; in the context of the DUT, it represents the primary element of the residual cosmological tissue, whose gravitational collapse forms structural black holes. The observable universe resides inside one such structure, surrounded by this dark UNO-rich boundary.

During collisions involving this dense structural matter, particularly in stellar-scale black hole formations, the interaction between the axionic fields and UNO particles may release photons and trigger quantum fluctuations. This mechanism marks the moment when light emerges from darkness and establishes a thermodynamic time within the observable universe.

A symbolic Lagrangian for the axion–UNO coupling is

$$\square\_int = g_{aU} \cdot a(x) \cdot \bar{U}(x) \cdot \gamma^5 \cdot U(x)$$

where g_{aU} is the axion–UNO coupling constant, a(x) is the axion field, and U(x) represents the UNO field. This interaction not only supports the photon emergence described in early DUT formulations but also serves as a foundation for modeling phase transitions within the collapsing ancestral structure.

Together, these formalisms offer a minimal and scalable structure for simulating the DUT by integrating thermodynamic collapse, structural curvature anomalies, and exotic matter interactions. These formulations are not speculative additions, but physically grounded components that are increasingly compatible with astrophysical observations, particularly in environments where stellar black holes form and exhibit photon emissions beyond conventional accretion models. Thus, the DUT shifts from hypothetical to testable, offering a new framework for interpreting gravitational structures, dark matter dynamics, and the genesis of observable cosmos.

It is possible that the first anomalies that emerged in the Dead Universe were the supermassive black holes. Through interactions with a dense field of exotic dark matter, they may have created structural black holes along the decaying cosmological surface. These collapses likely emitted gravitational waves and induced topological perturbations that reshaped the space-time continuum. It is further hypothesized that such events could have initiated the emergence of photons and bionic particles. These waves, similar to ripples formed when a stone strikes the surface of water, may have stabilized a new boundary configuration. This dynamic structure could have laid the groundwork for the birth of the observable universe within an adjacent cosmological layer.

Contrary to conventional models that attribute the origin of the universe to stellar black holes or to a hot and dense singularity, the Dead Universe Theory proposes an alternative path. Rather than invoking a singularity that breaks Einstein's field equations or relying on a miraculous expansion from an undefined origin, this model outlines a continuous structural evolution extending from a decaying ancestral cosmos.
The observable universe may not have originated from a primordial singularity, as described by the Big Bang model, but rather from a large-scale structural anomaly composed of dense, non-luminous matter. This remnant of the Dead Universe, while currently unobservable through direct means, may reveal itself through secondary effects—such as asymmetries in gravitational lensing, rotational deviations in galactic halos, or anomalies in the cosmic microwave background.

Although this formulation remains speculative, it is grounded in a coherent conceptual framework aligned with extensions of general relativity and emerging theories of modified gravity. It is not intended to replace existing models, but to serve as a boundary-layer hypothesis to guide future observations and theoretical refinement.

Its strength lies not in claiming definitive answers, but in proposing that what we now call "the beginning" may in fact be a collapse boundary formed in the dense dark matter surface of a dying universe—whose physics remains incomplete, but to which all matter, time, and space may ultimately return after reaching the final state of entropy. In this darkness lie its eternal origins.

Figure 4: Conceptual Visualization Universe observable

While "black hole cosmology" has been proposed in various speculative frameworks, suggesting that our universe may have originated within a black hole formed in another universe, such models currently lack empirical mechanisms or predictive structure. As Jacob D. Bekenstein observed, "Black holes are among the most fascinating objects populating our universe" [5], yet fascination alone does not confer explanatory power in physics.

In contrast, the Dead Universe Theory (DUT) introduces a mathematically coherent and observationally grounded model rooted in established astrophysical principles. Rather than portraying black holes as generators of universes, a notion unsupported by any testable mechanism, DUT treats black holes as entropic endpoints within a broader cosmological collapse. It aligns with Hubble's observations and proposes an exponential retraction function that can be evaluated using data from instruments such as the James Webb Space Telescope.

As Benjamin Koch and Frank Saueressig explain, "Asymptotically safe black holes evaporate completely and no Planck-size remnants are formed" [3][4][11].

This understanding reinforces DUT's position: the observable universe is not the result of creation within a black hole, but rather the reactive core of a decaying cosmic structure, a structural remnant embedded within the dense and ancient fabric of the Dead Universe.

The vast dark region surrounding the luminous core in this figure represents this fabric, a nearly infinite-scale dark field composed of collapsed matter, gravitational remnants, and cold structural domains, extending beyond all observable limits. This field is not empty space, but the entropic architecture of a universe long past — the Dead Universe itself.

Further strengthening this distinction, observational data from the James Webb Space Telescope and related missions have documented the formation of galaxies in extremely cold regions of space. These galaxies emerge from the gravitational collapse of gas clouds, cosmic dust, and dark matter — not from the interiors of black holes. On the contrary, areas near black hole event horizons are inhospitable to stellar formation, due to extreme spacetime curvature and gravitational forces that disrupt structural coherence. As Kip S. Thorne describes, "A black hole has no hair, but it has a memory — the memory of the mass, spin, and charge of what it once consumed." [5]

The Dead Universe Theory, therefore, provides a coherent and empirically tractable alternative to the speculative notion of universe-generating black holes. It challenges established models not through rhetorical speculation, but through alignment with observable astrophysical data, thermodynamic coherence, and the laws of general relativity.

Therefore, the notion that black holes might create universes or generate galaxies is not supported by observational evidence or by any recognized galactic formation models within the scientific community. The Dead Universe Theory rejects that premise and proposes an alternative scenario — coherent with modern discoveries and within the observable limits of contemporary physics. "*Such stars will continue to shrink until they become black holes, regions of space-time so warped that light cannot escape them.*" — Hawking, S. [12][17]

For decades, the Big Bang theory has dominated modern cosmology. However, recent advances, such as the observations from the James Webb Space Telescope, have revealed anomalies that challenge this model — such as the existence of "dead" galaxies already in the early stages of the universe. The Dead Universe Theory emerges as a response to these inconsistencies, proposing that the current universe is a remnant encapsulated within a black hole formed by the collapse of a previous cosmos. [2][3][4]

Several models derived from the Big Bang introduce auxiliary hypotheses — such as:

- Cosmic inflation;
- Dark energy;
- Multiverse;
- dark matter — to sustain the gaps of a flawed and outdated cosmological model. Nonetheless, the Big Bang continues to prevail not by intrinsic merit, but due to the absence of a convincing new model that would allow the scientific community to advance in its research. [2][3][4]

Cosmological models such as "black hole cosmology" are interesting and deserve consideration, but remain in the realm of speculation, without concrete observational applicability.

The Dead Universe Theory proposes, with logical consistency, that the observable universe could lie within a black hole. It is plausible to assume that the death of a colossal structure — such as the ancestral universe — would result in a gigantic black hole with gravitational force sufficient to attract all the mass that today composes the observable universe. [5][1][6][7][2][3][4]

It is important to emphasize that although the Dead Universe Theory proposes this structure, it is not one of the merely speculative models. At the same time, it respects the work of modern physics, which for over a century has dedicated itself to developing calculations based on the Big Bang model. The Dead Universe Theory acknowledges that there is no direct scientific evidence that we live inside a black hole, but highlights that some speculative theories in the past have already raised this possibility — suggesting that the observable universe could be the interior of a larger black hole. [2][3][4]

The Dead Universe Theory, however, distinguishes itself by being simple, empirical, logical, and based on observations and feasible simulations. The so-called "black hole cosmology" suggests that the current universe is a "baby universe" inside a larger black hole. This proposal, initially defended by Raj Kumar Pathria and I. J. Good, suggests that several universes could arise from black holes — aligning with the multiverse theory, which is also speculative and, so far, impossible to test. [5][1][6][7][2][3][4]

The Dead Universe Theory, on the other hand, aligns with general relativity and accommodates Hubble's laws within a cohesive model. Moreover, it supports the analysis of dark matter and dark energy, as well as the inexplicable phenomena of quantum physics.

We may speculate that the universe is inside a black hole, although this idea is difficult to test — after all, we do not have access to the interior of a black hole nor to the possible "larger universe" of which ours could be a part. However, it is possible to test and analyze the hypothesis that the death of a colossal structure may have given rise to a black hole that harbors our observable universe. This possibility, although the most speculative point of the theory, cannot be ruled out.

After the publication of the Dead Universe Theory, compatible evidence emerged, such as the discovery of supermassive black holes, billions of times larger than the Sun, which reinforces the thesis that our universe could originate from a gigantic ancestral structure. These would be the last subtle particles that still “breathe” like a cosmic memory — although they are also already dead from the perspective of time.

The natural state of the dead universe, as proposed, is absolute darkness. Its collapse, when studied in more depth, reveals the emergence of the observable universe as a chaotic event in its initial phase. Certainly, colossal structures already exist, and soon we will be able to detect signs of the existence of light particles, primordial elements, and gravitational waves from before the 13.8 billion years proposed by the Big Bang.

There was intense activity in the dead universe during its cycles of decline. At each phase of cooling and collapse, new stars and galaxies were formed. These cycles left gravitational echoes that should soon be detected in real data. As it died, this universe preserved its cosmic memories — and today we inhabit what would be the most recent of those memories, born in an originally dark universe, without light.

This immense collapsing structure created gigantic primordial black holes every time parts of itself became extinct. In this way, data from the James Webb Telescope tends to reveal black holes of increasingly larger dimensions, originating from these implosions in the dead universe. Even if it is impossible to test all these hypotheses directly, we will be able to simulate the emergence of new universes through quantum computing.

The theory reaffirms that black holes are not creators of universes — as proposed by some speculative theories such as “Black Hole Cosmology.” This line of thought has been defended by some theoretical physicists over the years, with Nico J. Popławski being one of the most well-known names in this field.

"*Black holes appear as vacuum solutions of classical general relativity which depend on Newton's constant and possibly the cosmological constant.*"

— Benjamin Koch et al. [5][13][2][3][4]

In March 2025, a study conducted by computer scientist Lior Shamir, a professor at Kansas State University, brought relevant theoretical evidence through computational and observational analysis. His article, published in a peer-reviewed journal, directly challenges the Big Bang model and strengthens the Dead Universe Theory as a possible new standard model of cosmology. [1][2][3][4]

With the support of quantum computing and data from the James Webb Telescope, we are moving toward the validation of a new paradigm. It is crucial to highlight that James Webb discovered billions of dead galaxies, revealing a universe in decline billions of years before the 13.8 billion years proposed by the Big Bang. Many of these galaxies, completely inactive, were detected shortly after the publication of the first articles related to the Dead Universe Theory. [1][2][3][4][33][34][35][36][37][38][39][40]

The argument is simple: the universe cannot be expanding infinitely and dying at the same time. There is no equation that balances this. The theory of cosmic inflation — which starts from an extremely hot density expanding from a primordial point — has failed. Popławski’s proposal is different from the Dead Universe Theory: for him, the universe was generated by a black hole from another universe. The Dead Universe Theory, however, affirms that a gigantic, decaying ancestral universe gave rise to the observable universe, whose last “living” particles inherited anomalies such as light, forming the structure we now know. [3][4][5]

"*JWST provides a view of the Universe never seen before... These observations are in excellent agreement with deep fields taken at around the same footprint by HST and JWST...*"

-Lior Shamir [1][2][3][4][33][34][35][36][37][38][39] [40]

Unlike Popławski’s theory, the Dead Universe Theory rejects the idea that black holes form universes — unless there is direct observational evidence that even a single particle has emerged from the interior of a black hole, which, so far, is considered impossible. The Dead Universe Theory, in almost its entirety, can be tested with data from the James Webb Telescope, astrophysical calculations, and quantum computing.

It is even possible to estimate the distance between the current structure of the universe and the possible event region that separates it from the dead universe — something that may soon be confirmed. [5]

Lior Shamir’s article raises fundamental questions about the reliability of redshift as the sole indicator of distance and time — which directly affects the entire foundation of current cosmology and opens space for the validation of alternative models, such as the Dead Universe Theory. Although the study does not directly state that the universe is inside a black hole, its conclusions support the hypothesis of a cosmos emerging from a pre-existing, dead, and dark gravitational structure. [1][5][2][3][4]

This approach reinforces the idea that analyses supported by quantum computing and large volumes of observational data may be decisive in formulating and validating new cosmological models. It represents a significant advance in the field of computational astrophysics.

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Although Shamir's work does not constitute a complete cosmological model like the one proposed by Joel Almeida, it supports the core of the Dead Universe Theory: the real possibility that the observable universe is just a temporarily illuminated region, embedded in the core of a black hole formed from the death of a previous universe. [1][2][3][4]

Lior Shamir's findings appear to be consistent with several predictions of the Dead Universe Theory, offering a potential avenue for future comparative analysis. Furthermore, it acknowledges the scientific merit of a work that, through computation applied to cosmology, proved that galaxies are rotating — exactly as predicted by Almeida's theory — demonstrating total alignment with his proposal. [1][2][3][4][5] The merit of the Dead Universe Theory lies in presenting, since its original publication, an integrated conceptual structure, with consistent hypotheses about dark matter, the origin of light as an anomaly, the natural separation of galaxies, and the possibility of computational simulation through quantum systems. The three articles published by Joel Almeida accurately anticipated various results that are now beginning to be modeled by next-generation computational environments, giving empirical robustness and predictive power to his cosmological model.

We can then raise a simple and direct question: *if the initial structure of the universe is dead, how can it be said that it is expanding?* The Big Bang theory, based on an initial singularity, fails to convincingly explain the most recent data. The Dead Universe Theory conceptually precedes these speculative models and establishes a complete, verifiable structure, independent of inflationary cosmology. It integrates observational physics, exotic particles, and thermodynamic cosmology under a new light — or rather, under the absence of it. [1][2][3][4][5]

The Dead Universe Theory (DUT) is a cosmological proposal that begins precisely where the Big Bang model can no longer advance. While the universe described by the Big Bang is said to have begun approximately 13.8 billion years ago, DUT emerges as a necessary alternative — a theoretical continuation that transcends this temporal and conceptual boundary.

It is a model that does not deny the achievements of modern cosmology but rather integrates them with respect and depth. After all, it is admirable that a theory has endured for over a century, sustaining the foundations of contemporary astrophysics. However, the time has come for the field to cease patching a paradigm that no longer responds to emerging observations.

The Big Bang was never designed to explain what preceded its own limits — its original intent was not to extend beyond the 13.8 billion-year mark. Attempting to artificially prolong it by introducing new terminologies — such as "primordial black holes" presented as the "seeds" of the universe — does not constitute genuine theoretical progress but instead reflects a means of circumventing structural gaps. Even when dressed as scientific continuity, such conduct reveals an institutional resistance that borders on intellectual dishonesty.

From an ethical and epistemic perspective, it is troubling to witness independent and rigorous initiatives toward new cosmologies being dismissed or disregarded without due analysis, while billions of dollars continue to be allocated annually to uphold a model that shows evident signs of exhaustion. Although modern science no longer burns its dissenters in public squares as in the age of the Inquisition, it still symbolically casts many ideas into the fire — especially those that challenge the doctrinal foundations of its most cherished models.

Just as it was once dogmatically claimed that the Sun revolved around the Earth, today many still cling to the "dogma of the Big Bang" with near-religious fervor. Such a posture, far from being purely scientific, reflects an institutional attachment to a paradigm that can no longer coherently explain the anomalies revealed by the most recent data — while simultaneously silencing or diverting serious efforts that seek to expand the boundaries of cosmology.

II. Framework — Dead Universe Theory — Central Hypotheses and Mathematical Formulation

Hypothesis I — The Universe as the Interior of a Structural Black Hole

The observable universe is not expanding from a singularity but is instead a residual structure embedded within a supermassive gravitational object — a *structural black hole* formed from the thermodynamic collapse of an ancestral cosmos. This "Dead Universe" was composed of ultra-dense exotic matter and decayed into a stable but inert gravitational topology.

Hypothesis II — Light as a Localized Thermodynamic Anomaly

Light is not a primordial constant but a byproduct of rare particle interactions occurring near the entropic limit of collapse. Specifically, light emerges through axion fusion processes under boundary curvature conditions. The rest of the cosmos remains fundamentally dark and silent.

Hypothesis III — Asymmetric Retraction and Outer-Inward Galactic Decay

The observable universe is undergoing *asymmetric retraction*, not expansion. Galaxies are not drifting apart due to spacetime inflation but are decaying from the periphery inward due to gravitational-thermodynamic collapse.

This model implies that regions at higher redshift zzz represent older, colder, and more degraded structures — *not the beginning*, but the *outskirts of cosmic death*.

Hypothesis IV — Structural Black Hole as the Host of Observable Cosmos

The black hole in question is not stellar or galactic in origin, but cosmological. The observable universe is a *reactive photonic anomaly* trapped inside its topology.

The scale factor of this retraction is described by an exponential decay law:

a(t)=C1·e−H0ta(t) = C_1 \cdot e^{-H_0 t}a(t)=C1·e−H0t

Where:

- a(t)a(t)a(t) = scale factor at time ttt,
- H0H_0H0 = gravitational retraction constant (analogous to Hubble, but negative),
- C1C_1C1 = initial reactive core size.

This describes a *present-day entropic decay*, not a past event or future collapse. It's the actual state of the observable universe embedded in a decaying system.

Estimation of Cosmic Age:
Assuming the normalized current scale factor is:

a(t0)=1⇒t0=1H0a(t_0) = 1 \Rightarrow t_0 = \frac{1}{H_0}a(t0)=1⇒t0=H01

This provides a new method for defining the *true age* of the universe — not based on light emission from galaxies, but on *decay rate from the collapsed field*.

Implications:

- No Big Bang is required if entropy gradients explain structure.
- Cosmic fossils (e.g. SMBHs, cold halos) contain more temporal information than luminous galaxies.
- The observable cosmos is the last active thermal bubble — soon to dissolve.

According to the Dead Universe Theory, the observable universe did not emerge from a hot singularity, but rather from a cold and pre-existing structure: the Dead Universe. This vast, dark entity was already in an advanced state of thermodynamic decay long before the appearance of light, and it generated a large luminous anomaly — our observable cosmos.

What we perceive today is not a rebirth nor a continuous expansion, but the weakened remnants of a thermal anomaly embedded within a dying body. Galaxies may still form within this structure, but the system as a whole is retracting, cooling, and returning to entropy. The observable universe is not expanding; it is undergoing decomposition — from the edges toward the center — reflecting the final stages of an ancient collapse.

This is, therefore, a classical description of what defines a black hole: a structure in which matter and light are confined, and where the observable universe would be lodged, as represented in the image of the small luminous point surrounded by cosmic darkness.

This view differs from simplified cosmological models that suggest black holes — including those observed in the current universe — could give rise to new universes. Such a notion is inconsistent, as black holes are not generators of matter, but gravitational collapse structures. Although the observable universe may appear small compared to the Dead Universe, it contains extraordinary amounts of dark matter — something the Big Bang model fails to explain satisfactorily. In fact, only a colossal pre-existing structure could justify the origin of the approximately 95% of dark matter present in the current universe, in addition to all remaining ordinary matter.

When the Dead Universe Theory states that the universe lies inside a black hole, it does not refer to the cyclical or speculative hypothesis of cosmologies like those of Pathria (1972) or Popławski (2010), which propose universes formed inside black holes through quantum rebounds. Instead, this model argues that the black hole in which we are embedded was not formed by stellar collapse, but by the ejection of light — an anomaly — from the supermassive and degenerate body of the Dead Universe. [5][6]

Light, by expelling matter from its original state, would have created a pocket of thermal and gravitational activity, still tied to the larger structure that generated it. Just as magma is molten rock contained within the Earth and, when expelled, becomes lava — without ever ceasing to be part of Earth's structure — the observable universe is that "cosmic lava": a fleeting and localized phenomenon still confined within an older, darker structure.

Therefore, the claim that the observable universe resides within a black hole must be understood as the description of an energetic anomaly housed within a remnant structure — and not as the creation of a new universe by rebound or inflationary mechanisms. This reinforces the idea that black holes are not structure creators, but energy and order diluters. Many of them, in fact, arise as the final product of luminous anomalies. We know, for instance, that after the formation and death of stars, black holes emerge. Thus, without the existence of light, several of these primitive structures would not even exist.

III. The Dead Universe: Structure and Composition

And indeed, those detections have already begun.

The James Webb Space Telescope (JWST), though still presented under the constraints of the standard cosmological model, has already uncovered a class of galaxies with masses, metallicities, and structural coherence that should be physically impossible within the first 300–500 million years after a Big Bang. These galaxies are not faint, irregular early formations; they are mature, luminous, well-formed systems whose light signatures imply a prehistory incompatible with a young, hot origin. What the public receives as "unexpected" findings are, in fact, confirmations of DUT predictions. [2][3][4][33][34][35][36][37][38][39][40]

Moreover, the early presence of supermassive black holes, with billions of solar masses at redshifts $z > 10$, forces the ΛCDM model to introduce extreme and unverified mechanisms of black hole growth, including super-Eddington accretion and exotic seed models. The Dead Universe Theory, in contrast, absorbs these anomalies without adjustment. These black holes are not products of rapid formation within the observable era; they are gravitational relics of the pre-luminous universe, survivors of the dark structure that decayed into our current observable core.

The cosmological redshift, under DUT, is not a signature of continuous expansion but of thermodynamic and structural decomposition — a gravitational redshifting of signals from within a collapsing entropic environment. The asymmetries in galaxy rotation, observed alignments in cosmic structures, and even the unexplained cold spots in the CMB are not noise; they are residuals of directional collapse. What appears isotropic under ΛCDM assumptions is the illusion of uniformity within an imploding domain. [2][3][4][33][34][35][36][37][38][39][40]

As JWST probes deeper, it will begin detecting not only galaxies beyond the 13.8-billion-year horizon, but also cold, massive structures whose light never emerged, or whose emission was extinguished before reaching us. The so-called "dead galaxies" will not be theoretical anymore; they will be measured through gravitational lensing, residual infrared shadows, and distortions in background radiation. These are not extensions of known cosmology; they are the fingerprints of a dying core embedded in a universe far older than light itself. [2][3][4][33][34][35][36][37][38][39][40]

The future of cosmology is not inflation — it is entropy.

The next revolution will not come from expanding equations to accommodate unexpected data, but from abandoning the idea that light marks the beginning.

The Dead Universe Theory does not need to stretch, patch, or reinvent itself to remain viable. Every new anomaly makes it stronger, because it was built from the beginning to explain them. [2][3][4][33][34][35][36][37][38][39][40]

The universe is not expanding. It is unraveling. And DUT is the first theory to say so before the evidence forced us to admit it. [3][2][4]

IV. The Universe as Cosmic Memory

The theory proposes that the visible universe is composed of the last active memories of the dead universe. Galaxies, stars, and nebulae are remnants of a glorious yet decaying past. Every form of life, every pulse of light, is part of what remains from an ancestral cosmos that insists on reviving fragments of its existence through what we now call current reality. The formation of new galaxies can be seen as memory reactivations — gravitational echoes resonating among the ruins of the dead universe. [3][4][2]

V. Natural Separation of Galaxies

While the Big Bang postulates an explosive expansion, the Dead Universe Theory proposes a natural separation between galaxies. This separation does not result from an initial explosion, but from residual forces of the dead universe that organize distancing without thermal violence. Hubble observed redshift, but did not determine its cause: the Dead Universe Theory proposes that it is a consequence of laws inherited from a prior cosmos. [3][4][2]

Rather than accelerated cosmic expansion, the theory suggests that the universe is contracting and cooling, with galaxies moving apart naturally due to internal forces. There was no initial singularity; therefore, there was no Big Bang. The expansion of the universe is an optical illusion from the observer's point of view. Galaxies appear to move apart, but surrounding the observable universe are supermassive bodies, dead galaxies, exotic particles, and space-time curvatures — all remnants of the dead universe. Dark matter and dark energy would be elements inherited from that prior structure. [3][4][2]

VI. Light as an Exception

According to the hypothesis of the Dead Universe Theory, light may have emerged as a result of rapid and anomalous particle fusions, occurring amidst the energetic chaos of a collapsing ancestral universe. This light would have enabled the formation of the currently observable universe — an extraordinary, yet transient phenomenon. Eventually, according to this model, that light may be reabsorbed into a silent and dark future. In this context, stars, galaxies, and pulsars are interpreted as temporary anomalies, not structural constants of the cosmos. The natural state of the universe, in this view, would be darkness. We are surrounded by this darkness. Light is minimal. And yet, we continue to pretend we understand everything.

"We live on a mote of dust suspended in a sunbeam."
— Carl Sagan, Pale Blue Dot [3][4][2]

We propose the existence of a hypothetical particle, which we call UNO, capable of sustaining complexity and organization in environments entirely devoid of electromagnetic radiation. This particle would serve as an alternative to the photon, acting as a carrier of information and structural coherence in regions of absolute darkness, such as those predicted by the Dead Universe Theory.

Unlike photons, UNO particles would not interact with electromagnetic fields, nor emit any detectable radiation. Instead, they would propagate in low-entropy, cold regions, maintaining structural stability and enabling the emergence of memory, self-organization, and potentially sentient systems. This framework opens the door to a new form of biophysics, a "biology without light", where life does not depend on stellar energy or photonic exchange. [2][3][4]

A strong analogy can be drawn from embryonic development in terrestrial life. Embryos thrive in complete biological darkness, enveloped in uterine walls and amniotic fluid. Although rare phenomena such as the "zinc spark" — a momentary emission of light during fertilization — have been observed, they are not energetic sources of life, but rather indicators of biochemical transition.Light is the exception. Darkness is the structure. Life does not flourish because of light — but because there is consciousness within the darkness. In this analogy, the zinc flash is not the source of vitality, just as photons are not a prerequisite for complexity in a UNO-driven system.

Thus, we hypothesize that the UNO particle may underlie the persistence of complexity in the absence of thermodynamic light, offering a viable explanation for the survival of structure and potential consciousness in the cold, decaying architecture of the dead universe. [2][3][4]

VII. Appendix – UNO Hypothesis and the Possibility of Structure in Darkness

This extended framework refines the UNO hypothesis by addressing its functional mechanisms, thermodynamic plausibility, biological analogues, and possible paths toward experimental validation. The UNO particle is proposed as a dark matter entity capable of sustaining organization and complexity in the total absence of electromagnetic radiation. [2][3][4]

The UNO particle does not interact via the electromagnetic force. Instead, it operates through non-local quantum coupling, similar to macroscopic quantum entanglement. We propose the existence of a new fundamental interaction — a short-range "dark biological force" — responsible for maintaining structural coherence and information exchange in dark matter environments.

UNO-based systems may inhabit dark matter halos where particle densities are sufficient to support stable complexity. These systems would maintain internal order through vibrational phase modulations and localized coherence within matter fields. [2][3][4]

VIII. Thermodynamic Foundations

In a universe where thermal radiation is nearly absent, entropy remains the central challenge. UNO-based structures are theorized to extract energy from vacuum fluctuations and dark energy gradients. Coherence is preserved through controlled decoherence, forming stable quantum macrostructures akin to solitons. These "islands of order" persist in the midst of cosmic decay, potentially existing within ancient galaxies where baryonic activity has ceased.

IX. Dark Matter Biology

Biological organization need not rely on electromagnetic chemistry. UNO-based life could consist of:

Dark Cells: Aggregates of dark matter stabilized by the dark biological force, with boundaries defined by potential barriers rather than membranes.

Non-Photonic Metabolism: Information and energy exchanged via gravitational modulations or density wave interference.

Self-Replication: Achieved through phase pattern interference, similar to vortex replication in quantum fluids.

The brain uses electrochemical synapses; UNO systems may use phase-coherent "dark synapses" to encode memory and computation.

X. False Ability and Testing Proposals

Although UNO particles may be undetectable via electromagnetic means, indirect signatures may include:

Anomalous gravitational lensing patterns in dark matter regions with unexpected internal structure.

Low-frequency gravitational waves exhibiting patterns not consistent with known merger events.

Laboratory analogues using Bose-Einstein condensates near absolute zero, or controlled vacuum chamber environments to observe spontaneous emergence of order under quantum conditions. [2][3][4]

XI. Responses to Critical Objections

Objection:

- Lack of energy in cold regions– Vacuum fluctuations and dark energy provide latent energy gradients.
- No electromagnetic interaction – Replaced by a new short-range interaction (dark biological force).
- Maintaining order without heat flow – Coherence sustained through quantum macrostability and non-classical energy pathways.
- Biological analogy (embryo in darkness) – Demonstrates that complexity can emerge and persist in absence of light-based energy.

XII. Next Steps toward a Unified Theory

Mathematical modeling of the dark biological force and its integration into general relativity and quantum field theory.

Exploration of links between UNO and proposed dark matter candidates (e.g., axions, neutralinos, hidden sector bosons).

A philosophical reformulation of life and consciousness to include dark-structured systems independent of photonic interaction.

XIII. Effective Field Equation for a UNO Particle

The equation presented is an effective field model, inspired by non-relativistic quantum mechanics, adapted to describe the coherent evolution of systems based on UNO particles in low-entropy environments. Its purpose is not to replace general relativity at cosmological scales, but to locally represent the emergent quantum behavior of complex structures in regions dominated by cold dark matter and dark energy. The term Vdark(r,t)V_{dark}(r, t)Vdark(r,t) denotes a generalized dark potential, which may include soft gravitational fluctuations, local spacetime curvature, or resonance with background scalar fields. The function Ψ\PsiΨ represents the structural coherence of the UNO system as a whole, allowing for the study of its temporal stability and spatial organization:

$$i\hbar\, \partial\Psi/\partial t = [\, - (\hbar^2 / 2m\_UNO)\ \nabla^2 + V\_dark(r, t) + \lambda \cdot \rho\_vacuum\,]\ \Psi$$

Description of terms:

Ψ: wave function of a coherent UNO-based system

m_UNO: effective mass of the hypothetical UNO particle

V_dark(r, t): local dark potential (may represent gravitational fluctuations or resonance with dark energy)

ρ_vacuum: energy density of the quantum vacuum

λ: coupling coefficient between UNO and the vacuum (free parameter)

UNO is proposed as a dark matter particle mediating a non-electromagnetic, structure-supporting force. It may sustain complex, stable systems in low-entropy environments, representing a form of biological organization adapted to the deep future of a dark, decaying universe. It provides a scientific foundation for life beyond light — a biology of the dead universe. [2][3][4]

XIV. Extension of the UNO Theory — Life, Order, and Consciousness in Dark Matter

The UNO hypothesis proposes that life may arise and be sustained in environments of absolute darkness, through structures composed of cohesive dark matter governed by a new weak fundamental force. Dark Metabolism: UNO interactions modulate weak gravitational fields to enable information exchange and structural organization, using dark energy as a functional substrate.

Reproduction and Evolution: Phase instabilities in dark matter fields allow for replication and structural variation, generating a process of gravitational natural selection.

Dark Consciousness: Macroscopic coherent states of UNO particles could give rise to self-observation patterns, as suggested by quantum consciousness hypotheses adapted to non-photonic media. [2][3][4]

XV. Linear Model of the Universe as a Unique and Irreversible Anomaly

UNO does not violate the second law of thermodynamics; rather, it redistributes local entropy through quantum coherence and indirect transfer into the quantum vacuum.

UNO systems would function as “islands of order” sustained by Higgs field fluctuations or resonances with dark energy, stabilizing complexity in cold regions. [2][3][4]

Definitions:

U_0 : Size/energy of the initial anomaly (the observable universe), much greater than a typical cosmic seed.

t: Time since the formation of the anomaly (with t = 0 at its emergence).

M(t): Mass/energy available in the observable universe at time t.

λ: Effective decay rate (stellar death, energy dissipation)

T☐: Final time when M(t) → 0 (the end of the anomaly).

a) *Basic Equation (irreversible linear exponential decay)*

$$M(t) = U_0 \times e\hat{}(-\lambda t) \qquad 0 \leq t \leq T□$$

At time $t = 0$, $M(0) = U_0$: the anomaly is at its maximum.

As time progresses, M(t) continuously decreases, reflecting stellar death and the irreversible loss of usable energy.

When $t \to T□$, $M(t) \to 0$: the anomaly vanishes. The observable universe ceases to exist and returns to the original state of the Uno — a static, infinite, and unmanifest condition.

b) *Conceptual Interpretation*

Single Origin: The observable universe is a unique and gigantic anomaly that emerged from the Uno — an infinite, static, and "dead" state (without manifestations). Linear Process: The anomaly went through formation and evolution, but the process is linear and irreversible — with no cycles or rebirths.

Total Death: The energy decay leads to an absolute end — $M(t) \to 0$ — and the visible universe returns to the Uno.

Return to the Uno: The Uno is the eternal and infinite state, but without manifestation — the visible universe is only a temporary and irreversible exception within that Whole.

c) *Physical Description of the Process*

The formation, evolution, and decay of the observable universe, according to the Dead Universe Theory, can be understood through a linear and irreversible thermodynamic process. At time $t = 0$, a localized anomaly emerges within the decaying body of the Dead Universe — a burst of mass-energy that gives rise to the observable cosmos.

This anomaly evolves through classical stages of stellar and galactic development:

- *Stellar formation and fusion:* Matter coalesces into stars, initiating nuclear fusion and energy production.
- *Galactic structure:* Clusters of stars form galaxies, which organize spatially within the gravitational influence of the larger structure.
- *Entropy increase:* Over time, stars exhaust their fuel, leading to supernovae and black hole formation.
- *Progressive cooling:* Energy dissipates, structures collapse, and the system enters a phase of irreversible decline.

This decay does not follow a cyclical path. Instead, it reflects a one-way thermodynamic process that leads the anomaly — our observable universe — toward complete energetic exhaustion. The observable cosmos shrinks not through spatial contraction, but through loss of usable energy, fragmentation of structure, and a return to the dark equilibrium of the Dead Universe.

In this model, the so-called "expansion" is interpreted as a misreading of light propagation in a collapsing and entropic environment. Rather than growing, the anomaly fades — its boundaries defined by entropy, not inflation. Light, once a transient anomaly, slowly extinguishes, and the universe returns to its natural state: darkness, silence, and structural stillness.

d) *Formation of the Anomaly*

At the initial instant $t = 0$, a quantity of mass-energy U_0 emerges, representing the observable universe in its peak physical manifestation.

e) *Evolution and Decay*

The anomaly evolves following a linear thermodynamic trajectory, characterized by:

- Stellar formation and evolution
- Nuclear fusion and energy generation
- Stellar death (supernovae, black holes)
- Progressive dissipation of usable energy

The decay of the anomaly is mathematically expressed by:

$$M(t) = U_0 \cdot e\hat{}(-\lambda t)$$

Where $M(t)$ represents the remaining energy at time t, U_0 is the initial mass-energy, and λ is the entropy-driven decay constant.

f) *Final Phase: Total Death of the Anomaly*

As $t \to T_x$, the universe loses its capacity to sustain complex structures:

- Extinction of stars and galaxies
- Dissipation of radiation
- Collapse of remaining material formations

g) *Review Based on James Webb Observations*

Recent JWST data supports this model:

- Stellar death begins at the observable edges and progresses inward
- Energetic decline manifests as a cascading effect from the periphery
- Supermassive black holes contribute to structural acceleration of decay
- The process is linear, thermodynamically irreversible, and non-cyclical

h) *Cosmological Consequences*

The observable universe is a luminous anomaly undergoing irreversible thermodynamic death. Its future is not expansion, but collapse and disappearance.

- No cycles, no rebirths, no future expansions

- Only a definitive return to the dark equilibrium of the UNO structure

This is formalized as:

$$M(t) = U_0 \cdot e^{(-\lambda t)},\ 0 \le t \le T_{\square}$$

$$\lim_{\square \to T_{\square}} M(t) = 0 \Rightarrow \text{End of the anomaly}$$

Return: The system reverts to the eternal, infinite, and static state of the UNO field.

XVI. Integration with Modern Particle Physics

UNO may be related to already-hypothesized particles, reinterpreted for this framework:

Table – Comparison of Hypothetical Particles in the UNO Model

Particle	Function in the UNO Model
Axions	Coupled to information and structural fields
Neutralinos	Capable of forming coherent structures
Gravitons	Mediators of the dark biological force

Theoretical networks can be simulated as quantum graphs with connectivity between dark matter clusters, modeling self-organization.

Figure 5: Comparison hypothetical UNO

XVII. Fermi Paradox: A Cosmic Reinterpretation

Advanced civilizations may have migrated to dark matter environments:

Their communication could be carried out through UNO field modulation, rendering them invisible to optical instruments.

Clusters with gravitational anomalies may in fact be UNO civilizations in a state of advanced dark activity.

XVIII. Confrontation between the Dead Universe Theory and the Big Bang

The Big Bang model fails to satisfactorily explain the origin of supermassive black holes, the nature of dark matter, the existence of old and cold galaxies at the beginning of the universe, and the cold spot in the cosmic microwave background [2][3][4][19][20][21][22][23]. It also fails to account for the matter–antimatter asymmetry, as the model predicts equal amounts of matter and antimatter, which are not observed [24][25][26][29]. Furthermore, it cannot explain the absence of magnetic monopoles, which are predicted by extensions of the standard model but have never been observed. The cosmological constant problem remains unresolved, with its finely tuned value presenting a discrepancy of more than 120 orders of magnitude—often regarded as the worst prediction in the history of physics. The origin of cosmic inflation is also unaddressed, with inflation introduced to solve the horizon and flatness problems, yet lacking a confirmed physical mechanism or direct observational evidence. The horizon problem itself persists, as opposite regions of the universe exhibit the same temperature despite never having been in causal contact. Additionally, the "Axis of Evil," a statistical anomaly in the CMB, contradicts the isotropy expected from the standard model [2][3][4][19][20][21][22][23].

The Dead Universe Theory offers coherent answers to all these inconsistencies by presenting a model more aligned with recent observational data. The claim that primordial black holes existed before the Big Bang is a scientific contradiction that this model cannot support [3][4]. If black holes existed, then matter existed—and therefore, there was no initial hot singularity, but mass, gravity, and a dark, cold field. These black holes could not have arisen from an expanding hot density but from a cold state. A solar-mass black hole, for instance, has a temperature of only 0.00000006 Kelvin. Thus, it is plausible that such structures emerged from the collapse of the ancestral dead universe and have existed ever since. "Black holes yield a quantum universal upper bound on the entropy-to-energy ratio for ordinary thermodynamical systems." — Jacob D. Bekenstein [4][15].

There cannot be a Big Bang if supermassive black holes already existed at the earliest observable moments of the cosmos. Persisting with a model that does not resolve such fundamental questions has led to decades of stagnation, and unless replaced by a more complete theory, it will continue to obstruct progress. A theory that effectively explains phenomena, fits within general relativity and quantum physics, and does not rely on constant patches to justify future findings is urgently needed [2][3][4]. Other speculative theories, such as those proposing black holes as universe generators, while flawed, may still contribute more than the Big Bang, as they offer better adaptability to observational standards [2][3][4].

Although speculative and still under construction, such models may play a more significant role in the future of astrophysics than the Big Bang, which, though dominant for decades, is now increasingly incapable of explaining the fundamental structures of the universe. The Dead Universe Theory asserts that the origin of everything was cold and dark, not hot and expanding. The observed abundance of hydrogen and helium would have resulted from the gradual collapse of the dead universe, not from a primordial explosion. The CMB, far from being a remnant of a singular event, is interpreted here as thermal residue from a prior structure.

This theory directly challenges the notion of universal expansion when evidence of ancient, dead galaxies and colossal structures is found precisely where the model predicts uniformity. If the universe is expanding, one must ask—to where? Toward entropy? From darkness it emerged briefly into light, only to return again into shadow. That is not a Big Bang. That is its funeral.

Redshift, rather than being a sign of expansion, may indicate the last light of dying galaxies—evidence of a cosmic collapse already underway for hundreds of billions of years. The CMB is not the echo of a beginning, but the final thermal memory of what has collapsed. The chemical abundance of light elements supports the notion of an ancestral dark decay. The collapse of that structure produced phenomena such as light, black holes, dark matter, and possibly dark energy. The observable universe is but a luminous anomaly within that field [2][3][4].

Light, once considered constant, will fade. Darkness is not absence—it is origin. This does not imply imperfection; only the limitation of our understanding. The Dead Universe, though invisible, may have been far more active than the visible cosmos, which is merely a fragment of a greater and silent memory [2][3][4].

XIX. Comparison with Previous Black Hole Models

Researchers such as Nikodem Popławski have already suggested that our universe could be inside a black hole, based on interpretations of general relativity and quantum gravity theories. These proposals remain in the realm of mathematical speculation and do not constitute complete and testable cosmological models. "The information paradox appears when one considers a process in which a black hole is formed and then evaporates away entirely through Hawking radiation." [2][3][4] [5] [14] [16]

Popławski's cosmology model does not deny the Big Bang, nor does it describe an extinct ancestral universe that still influences our cosmos. The universe model proposed by Nikodem lacks valid scientific evidence. We analyze Hawking evaporation of the Callen-Giddings-Harvey-Strominger (CGHS) black holes from a quantum geometry perspective and show that information is not lost Ashtekar," A. Taveras. [2][3][4] [5] [14]

XX. The Rotating Ancestral Dead Universe and Motion Dynamics

The hypothesis of the Rotating Ancestral Dead Universe proposes that the rotation observed in current galaxies may be a legacy of a previous collapsing universe that spun around its own axis. This idea gains relevance in light of recent observations from the James Webb Space Telescope (JWST), which identified an asymmetry in the rotation of distant galaxies: approximately two-thirds rotate clockwise, while one-third rotate counterclockwise. Such imbalance suggests the possibility of a primordial anisotropy of the universe, challenging the statistical expectation of a symmetric distribution. Although there is no empirical proof of direct influence from a previous universe, these observational findings strengthen the debate on non-isotropic initial conditions and their relationship with current cosmic rotation. [1][4][3]

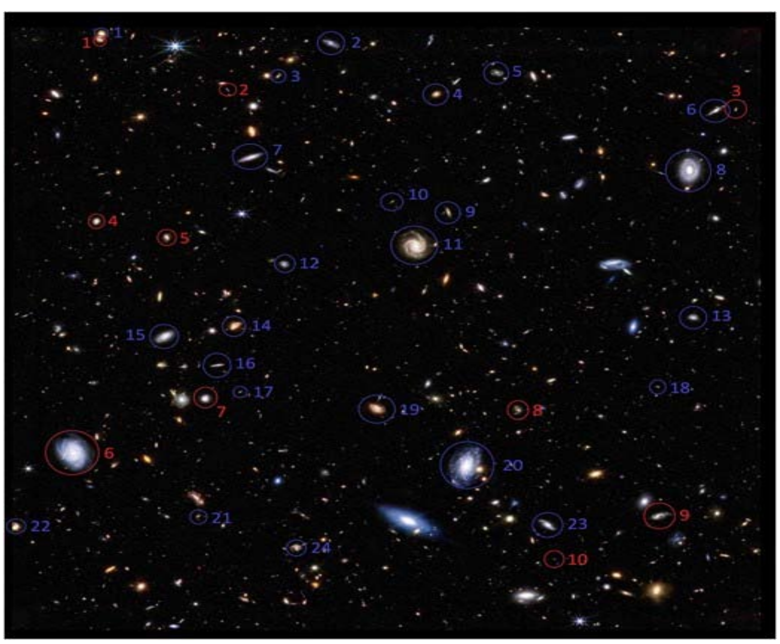

Figure 6: Spiral galaxies imaged by JWST that rotate in the same direction relative to the Milky Way (red) and in the opposite direction relative to the Milky Way (blue). The number of galaxies rotating in the opposite direction relative to the Milky Way as observed from Earth is far higher (Shamir 2024e). [1]

This Dead Universe rotated slowly, but due to its colossal size, the total rotational energy was nearly infinite on a local scale. Over time, this universe underwent gravitational collapse at its center, forming a smaller rotating core—which would become our current observable universe, still spinning like a remnant bubble.

A colossal rotational energy was partially transferred to the smaller universe—maintaining coherence with the principle of conservation of angular momentum. [1] [4][3]

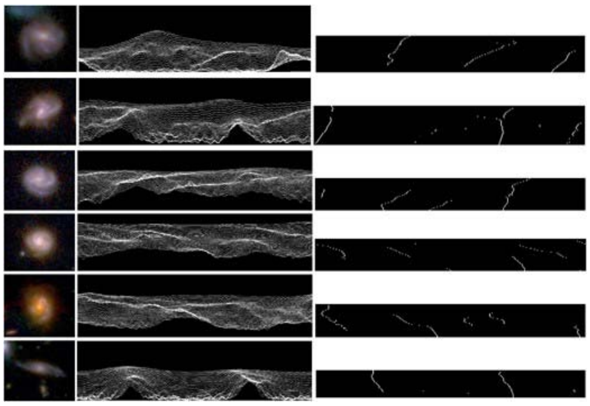

Figure 7: Example of galaxies imaged by JWST and the peaks of the radial intensity plot transformations of each image. The lines formed by the peaks allow to identify the direction of the curve of the arms, and consequently the spin direction of the galaxy. [1]

The James Webb Space Telescope (JWST) has been providing detailed images of the early universe. A recent study analyzed 263 galaxies and found that two-thirds of them rotate clockwise, while one-third rotate counterclockwise. This asymmetry in galaxy rotation intrigues scientists, since in a random universe, a balanced distribution would be expected. [1][4][3][2]

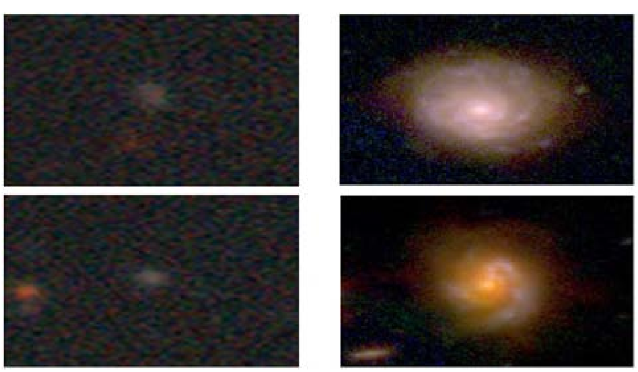

Figure 8: Example of the same galaxies imaged by DES (left) and by JWST. JWST allows to analyse galaxies that DES or other Earth-based telescopes cannot image with sufficient details to identify their direction of rotation. [1]

The process led to 263 galaxies with identified direction of rotation. Fig. 4 shows the distribution of the redshiof the galaxies.

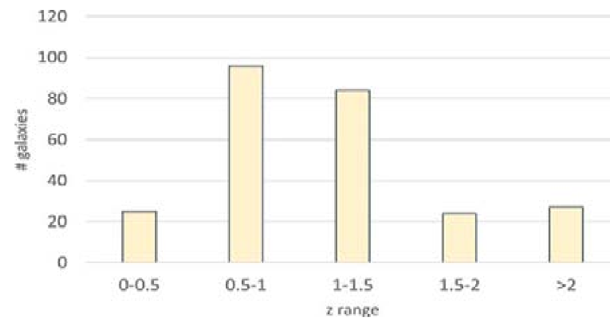

Figure 9: The redshift distribution of the JWST galaxies used in the study. [1]

This analysis aligns with the hypothesis that a colossal ancestral universe, upon undergoing gravitational collapse, may have propelled the observable universe outward from its center, generating dynamic patterns compatible with the asymmetries detected in recent observations by the James Webb Space Telescope. These patterns, intelligently interpreted by Lior Shamir, point to the possibility of a new cosmological architecture in which the origin and evolution of the universe do not stem from an initial explosion (as proposed by the Big Bang model), but from a prior collapse — deep, dark, and gravitationlly active.

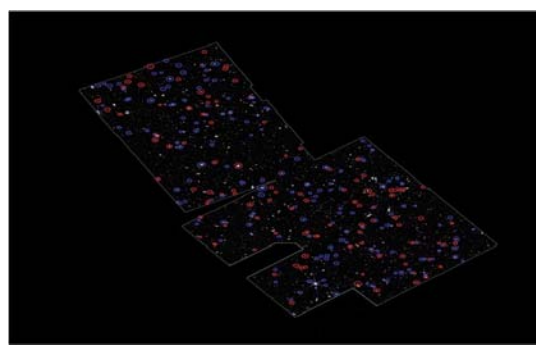

Figure 10: Spiral galaxies imaged by JWST in the GOODS-S field of JADES that rotate in the same direction relative to the Milky Way (red), and in the opposite direction relative to the Milky Way (blue). The figure shows 158 galaxies that rotate in the opposite direction relative to the Milky Way, and just 105 that rotate in the same direction relative to the Milky Way. The analysed field covers the JWST GOODS-S JADES field imaged with the 4.4, 2.0, and 0.9 μm bands. [1]

J. Almeida had already suggested in previous publications that the redefinition of modern cosmology would depend less on direct observation and more on the ability to integrate quantum computing with existing physical models. Emerging technologies will enable the detection of patterns and simulations that escape both the capabilities of telescopes and the speed of traditional mathematical methods used in classical astrophysics. [2] [3] [4]

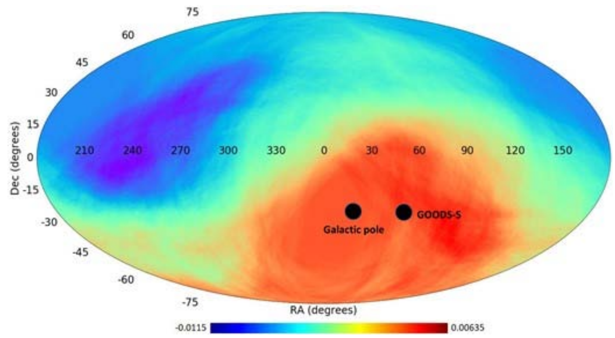

Figure 11: The differences in the number of galaxies with opposite directions of rotations in different parts of the sky as determined by using 1.3×106 galaxies imaged by the DESI Legacy Survey (Shamir 2022e). The location of the GOODS-S field is at a part of the sky with a higher number of galaxies rotating clockwise. [1] [2] [3] [42]

a) *Prediction of Collapse Asymmetry (Outside-In Stellar Death)*

The Dead Universe Theory predicts that the deeper the James Webb Telescope observes, the more ancient, dead, and inactive galaxies will appear. This will validate the idea that we are witnessing structural remnants of a previous universe, not a creation from "nothing" — unless, indeed, a Creator God exists. The spectral mapping and light analysis of these objects will bring confirmation: there is no sign of cosmic youth, but rather of ancient decay. "Black holes provide a rich testing ground for quantum gravity ideas." — Benjamin Koch & Frank Saueressig [3][9]

- *Prediction:* Billions of dead galaxies and supermassive black holes
- *What to observe:* Galaxies at z > 10 with no starburst signs
- *Unique prediction:* The universe is not aging uniformly — it was already old at the edges from the beginning

b) *Supermassive Black Holes Where There Should Be No Time to Form Them*

- *Prediction:* Black holes with >1 billion solar masses in starless or pre-star regions
- *What to observe:* JWST already detected such cases in 2023
- *Unique insight:* Some supermassive black holes are fossils from the Dead Universe

c) *Absence of Filamentary Structure Beyond the Visible Limit*

- *Prediction:* Structural disintegration near observational limit
- *What to observe:* Cosmic web fragmentation is real, not data limitation
- *Implication:* The edge is lifeless — not distant, just degraded

d) *Inverted Entropy Curve over Time*

- *Prediction:* Entropy increases with distance, not with time
- *Observation:* Deep data should show older, colder, less energetic regions
- Unique confirmations:
- Farther = older, darker, disorganized
- Closer = younger, smaller, active
- Distant galaxies are dead giants with cold matter cores
- Supermassive black holes are ancestral relics
- Redshift is decay, not expansion
- CMB = thermal residue, not explosive origin
- Confirmed: JADES-GS-z13-0 = stellar density too early for standard model
- Confirmed: No Hawking radiation observed — contradiction to standard theory

e) *Expanded Entropy and Decay Predictions*

- *Prediction:*

As JWST approaches its detection limit, cosmic structure will fragment and become irregular• What to observe: The transition from an organized universe to a structureless void is real and not due to missing data• Unique insight: The universe is a degenerating organism collapsing toward its center — the edge is already lifeless

- *Prediction*

Entropy measured at large scales (CMB, galaxies, black holes) will not increase with time, but with distance

- *What to observe:* An entropy curve that decreases with cosmological time, but increases with observation depth
- Unique model insights:
- Entropy increases with distance and decreases with current time — opposite of the standard model
- The farther we look, the more disorganized, colder, and lifeless the cosmos becomes
- Galaxies closer to us are smaller, younger, and active; distant ones are colossal and extinct
- Supermassive black holes detected in high-z regions are remnants of ancestral collapse
- These black holes lie atop a fabric of exotic dark matter (axions, UNO)
- The universe is retracting toward the present, not expanding toward the future
- Thermodynamic decomposition is asymmetric, beginning at the periphery

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- Galaxies at $z > 13$ lack explosive star formation — e.g., JADES-GS-z13-0 confirms this
- Absence of evaporating black holes contradicts Hawking's expectations
- Entropy increases with distance, not with time — supporting asymmetric decay
- Thermodynamic disorder grows toward the cosmic horizon; nearby structures are more coherent
- This contradicts the assumption of uniform entropy growth and supports the DUT model

XXI. Additional Consequences and Confirmations

- *Confirmed:* The entropy trend shows a directional pattern — high entropy aligns with observational depth, not cosmological age.
- *Implication:* The so-called "past" (cosmic horizon) may represent a deeper thermodynamic future of collapse — a reversal of temporal intuition.
- *Reversal logic:* What is commonly interpreted as the beginning (low entropy Big Bang) may actually be a high-entropy frontier of decay.
- *Prediction:* The oldest structures do not evolve into complexity — they decay from it.
- *What to observe:* The absence of uniform filament growth, presence of chaotic or disorganized voids at cosmic edges.
- *Implication:* Supports the idea of periphery-first collapse — structure did not emerge there; it vanished there.
- *Prediction:* Black holes will not evaporate as predicted by Hawking; no observable mass loss should be detected.
- *What to observe:* Decades of observation fail to show any significant evaporation signatures in galactic or stellar black holes.
- *Conclusion:* The mechanism of Hawking radiation may be flawed, or irrelevant in a retractive thermodynamic model.
- *Prediction:* Dark matter halos around ancient galaxies will appear colder and more gravitationally collapsed than expected.
- *What to observe:* Unexpected gravitational lensing from regions with little visible light — suggesting older, degenerated dark structures.
- *Interpretation:* These are not invisible galaxies — they are fossil remnants of cosmic tissue, consistent with DUT's prediction.
- *The Dead Universe Theory offers a shift in cosmological reasoning:* time flows inward, entropy increases outward.
- The cosmos is not expanding into an unknown future — it is retreating into a dark and ancient foundation.
- The observable universe is an energetic blister formed on the surface of a dying body — the Dead Universe — and it is shrinking.
- This decay is not cyclical, not regenerative — it is final. There is no bounce. No next beginning. Only the return to stillness.

We may be witnessing a paradigmatic shift: the construction of new cosmological models may no longer rest solely in the hands of astrophysicists, but rather in the hands of interdisciplinary teams — where computer scientists, equipped with theoretical physics knowledge and algorithmic intelligence, take the lead in mapping and interpreting the universe. In this scenario, the cosmology of the future will not be merely observational, but computationally inferred — with the power to validate hypotheses once considered unreachable.

As JWST approaches its detection limit, the cosmic structure will fragment and become irregular, as if falling apart. The transition from an organized universe to a "structureless void" will not be due to lack of data, but will reflect a progressive disintegration of the cosmic web. The universe is not a continuously expanding fabric, but a degenerating organism collapsing toward its center — with the edge already lifeless.

Entropy measured at large scales (cosmic radiation, galaxy distribution, entropy of black holes) will not increase as expected by the standard model if measured as a function of distance. An entropy curve that decreases with cosmological time, but increases with observation depth (distance), would suggest a universe that is dying toward the present, not since the present. According to DUT, the observable universe reveals an asymmetric evolutionary structure: the farther we look, the more disorganized, colder, and lifeless the cosmos becomes — contradicting models based on homogeneous expansion.

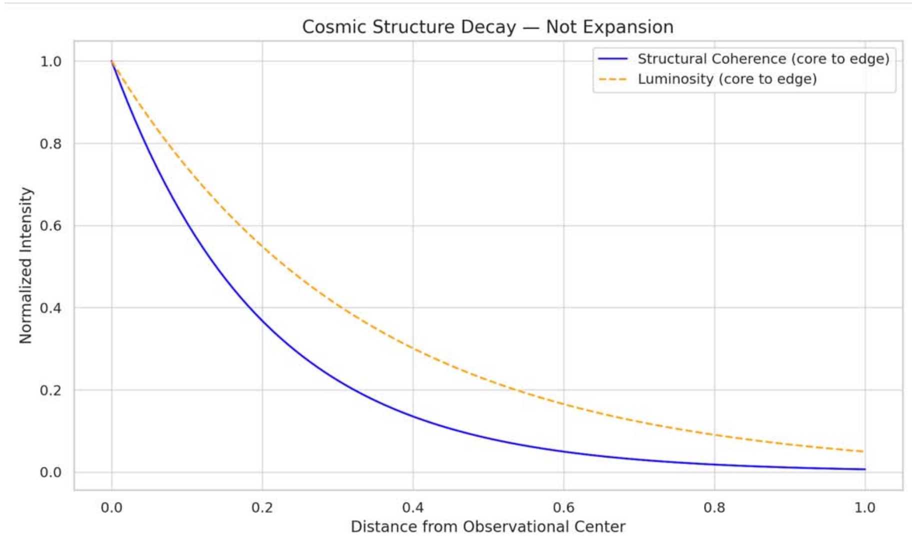

Figure 12: Thermodynamic Asymmetry — Younger Core, Older Edge

The Dead Universe Theory predicts that entropy increases with observation depth rather than time. The edge of the universe appears older, colder, and more structurally degraded, while the inner regions retain activity, mass coherence, and luminous phenomena. (credit image: Open Access Library Journal)

Galaxies located closer to us, within the internal regions of the gravitational field of the structural black hole, tend to be smaller, younger, and energetically active, whereas the most distant galaxies (and therefore the oldest) appear as colossal, already extinct structures, composed of dead stars and dominated by cold dark matter. Supermassive black holes — detected even in high-redshift regions — would be remnants of the gravitational collapse of the ancestral structure, not products of the current universe. These formations would rest upon an invisible fabric of exotic dark matter, possibly composed of particles such as axions and the proposed UNO particle.

Thus, the universe is not expanding toward the future, but retracting toward the present, with entropy increasing as we move away from the observable central region. This behavior reflects a dynamic of asymmetric thermodynamic decomposition, beginning at the periphery and progressing toward the core. The most distant galaxies ($z > 13$) no longer exhibit signs of explosive formation. Galaxies such as JADES-GS-z13-0 show abnormally high stellar density at a time when stars should not yet exist, according to the standard model.

The absence of evaporating black holes on a large scale is incompatible with the standard cosmological model. Despite decades of theoretical predictions, there is no empirical evidence of black holes undergoing significant Hawking radiation, contradicting expectations derived from the standard framework.

Entropy increases with distance, not with time — and this trend must be acknowledged. Observations suggest that thermodynamic disorder grows toward the cosmic horizon, while more recent and localized structures (closer to the present) retain coherence and lower entropy. This challenges the assumption of a uniformly increasing entropy over time and supports the hypothesis of asymmetric cosmological decay. The far reaches of space are not our beginning — they are our end, already written in the stars that died before we arrived.

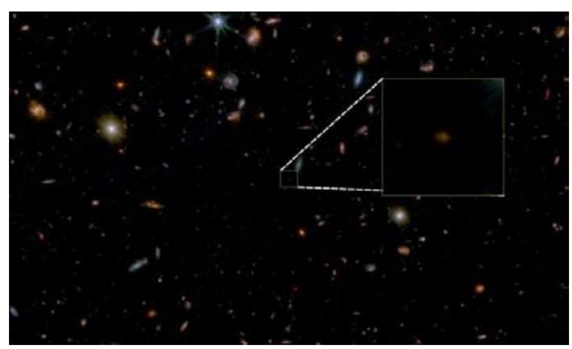

Figure 12: Astronomers discover the oldest "Dead" galaxy ever observed. Image: JWST false-color image of a small fraction of the GOODS-South field, highlighting JADES-GS-z7-01-QU, an extremely rare type of galaxy. Credit: JADES Collaboration. License: Public Domain. [1] [2]

Sequential echoes of explosions prior to the 13.8 billion years proposed by the Big Bang should still be detectable, as well as the presence of supermassive black holes of dimensions beyond what classical astrophysics can predict. Residual energy from the dead universe and gravitational waves resulting from the collapse of that ancestral universe are also expected to be identified. [3]

XXII. Discussions

For mathematical purposes, the idea of retraction in the Dead Universe Theory is not a uniform contraction of space-time as in the classical model of cosmic collapse. It is an asymmetric decomposition of the universe from the edges inward, as if it were rotting from the outside. Almost all galaxies of the Dead Universe are already dead, and the entire structure has become cold and dark, extending far beyond the 13.8 billion years proposed by the Big Bang model and all other cosmological models that never detached from it. We are to the Dead Universe what Earth is to the observable universe: a grain of sand, a small fading point lost billions of years ago in the void.

This aligns with the analogy of a watermelon rotting from the outside while temporarily preserving its inner core. Light is treated as a temporary anomaly, emerging within a fundamentally dark universe. The so-called illusion of expansion would be an error of interpreting light moving through an environment that is actually retracting in the invisible structure of the Dead Universe. Retraction is a progressive revelation of the still-healthy core, not a collapse. What still shines, the observable universe, is just the final breath of a dead body.

This decay does not occur everywhere simultaneously. It is selective, invisible, and still unrecognized by classical relativity, but it will not escape future observations by the James Webb Telescope. Its limit is no longer 13.8 billion years. It was expected that Webb would reach its maximum observational boundary, the outer edge of space-time. In reality, that point marks the end of the Big Bang. Beyond it, validation of the Dead Universe Theory begins.

This explains the emergence of black holes, the rise of entropy, the fragmentation of structures, and the disappearance of distant galaxies as intrinsic to the degenerative structure of the universe, not as a result of space expansion. According to the Dead Universe Theory, the universe may not be expanding, but instead undergoing retraction due to the structural decay of its larger underlying framework. What we interpret as expansion is merely luminous residue from an unrecognized collapse, caused by the perceptual anomaly of light. The Dead Universe is the true body, and our visible universe is only its late-stage core, still active, but doomed.

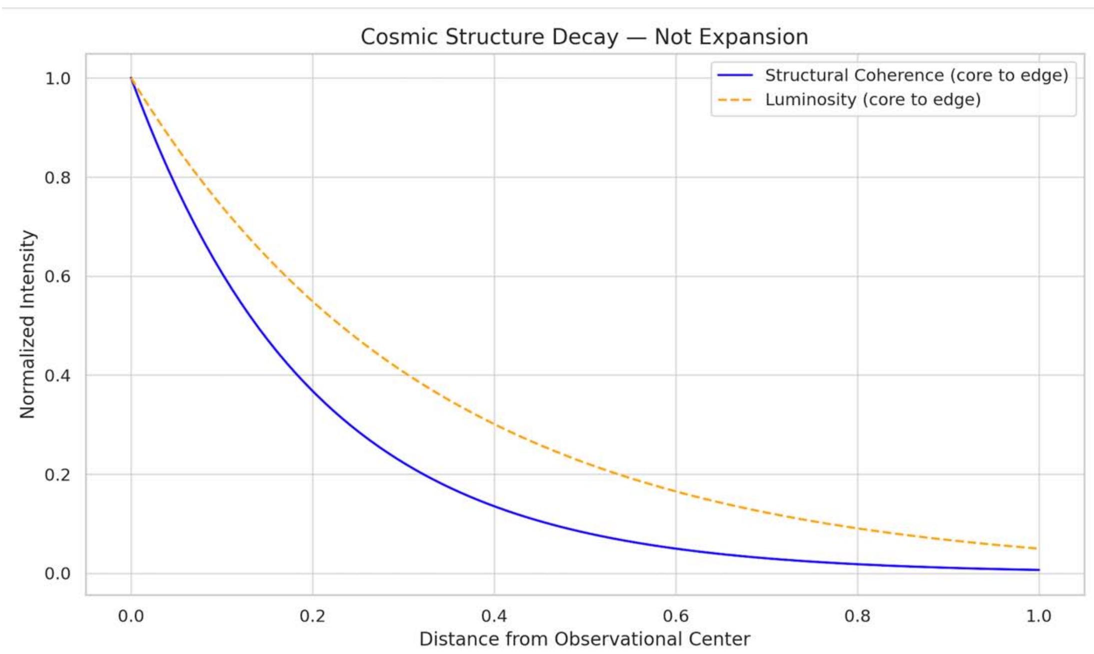

Figure 13: Observational data may reflect cosmic decay rather than expansion. The loss of structural coherence and luminosity toward the cosmic horizon aligns with the predictions of DUT. (credit image: Open Access Library Journal)

The Dead Universe Theory differs fundamentally from the Big Bang model and other theories built upon it. The concept of retraction, also referred to as the Big Crunch, suggests that the universe, after a period of expansion, begins to contract under gravity until it collapses into itself. According to this theory, the universe was never truly expanding because the Big Bang never occurred. There was no cosmic inflation or expansion from a hot, dense origin.

The Big Crunch is simply a repackaged Big Bang, disguised as an alternative model. It resolves none of cosmology's core problems and merely extends them. While the Big Bang proposes that the universe began with an explosive expansion, the Big Crunch claims that this expansion will eventually reverse.

In the Big Crunch scenario, the universe contracts, galaxies converge, and all matter and energy concentrate into a single point of high density and temperature. This theory speculates that the contraction might be followed by a new Big Bang, forming an infinite cycle of expansion and retraction. However, this gravitational cycle cannot be tested and remains speculative.

We may define the Big Crunch as the theory of infinite Big Bangs, which ultimately provides no resolution to the problems of the standard model. It implies that unanswered questions will simply repeat themselves indefinitely. Therefore, it offers no advancement. If the universe is expanding, as predicted, this is already known. But if it will retract and become another Big Bang, what does that change for cosmology?

We seek answers. We aim to ground ourselves in a consistent model that can serve as a framework for both General Relativity and Quantum Physics.

Meanwhile, the Big Freeze theory, also based on the Big Bang, predicts that the universe will continue expanding indefinitely. Over time, the density of matter and energy will decrease. Stars will exhaust their fuel and die, and the universe will become a cold, sparse void. These predictions began long ago, when the great Dead Universe collapsed. The end of the universe started billions of years before the Big Bang. James Webb is not observing the beginning of everything, but rather its end.

The Big Rip Theory, too, remains bound to expansion. It suggests that dark energy will grow stronger, accelerating the expansion of the universe to the point of tearing apart all cosmic structures, including galaxies, stars, and even atoms. This is highly unlikely, because what appears to be accelerated expansion may instead represent natural galactic separation governed by gravitational interactions from the ancestral Dead Universe — as proposed by the Dead Universe Theory.

Cosmological models involving multiverses are the most speculative of all. They may be more relevant to art than to science, as they refer to things that are fundamentally unobservable. Yet we cannot dismiss them, just as we once could not confirm black holes, which are now being studied and observed.

The Big Bounce is a cosmological model that proposes the universe follows a continuous cycle of expansion and contraction. Since it fails to satisfactorily explain why galaxies are receding so rapidly according to Hubble's Law, the theory suggests that the initial event (the Big Bang) was the result of the cyclical collapse of a previous universe, restarting in a new cycle. This model relies on the indefinite repetition of gravitational contractions followed by bounces.

However, this theory does not adequately explain cosmic retraction, as it directly depends on the inflationary and expansion models proposed by the Big Bang itself. In other words, either the Big Bang stands alone, or all theories derived from it, such as the Big Bounce, collapse alongside it.

In contrast, the Dead Universe Theory offers an independent and more consistent framework. The recession of galaxies is not the result of an explosive beginning, but rather a natural separation driven by the gravitational laws of a preceding structure — the so-called Dead Universe. This theory preserves the full validity of Hubble's Law, general relativity, and quantum physics, without resorting to an initial inflationary phase or infinite cycles of expansion and collapse.[2] [3] [4]

While the Big Bounce suggests the previous universe collapsed into a singularity and then bounced, creating the current universe, the Dead Universe Theory proposes a linear and irreversible timeline for all past and future cosmic events. The observable universe is encapsulated within this Dead Universe, and this structure can, in principle, be observed in depth, precisely because it still exists.

Unlike the Big Bounce, which assumes a prior inaccessible and purely hypothetical universe, the Dead Universe model does not rely on something invisible or external. Instead, it posits that this ancestral universe still exists — dark, cold, and inactive. It has no stellar activity, but its colossal structures remain intact. Its remnants can still be detected.

Importantly, the theory does not assert the existence of two separate universes, but rather a single, vastly larger universe whose original nature is dark and dead, devoid of stellar activity, until anomalies such as light triggered the emergence of the visible universe. The observable universe, then, is a temporary anomaly, which through entropy is gradually returning all extracted energy to the Dead Universe from which it emerged.

Therefore, the end of all things is not a new cycle. There is no rebirth. There is only total entropy, a return to darkness, and a transition from the chaotic complexity of the visible cosmos to the silent, static order of the Dead Universe.

XXIII. Final Considerations

The Dead Universe Theory (DUT) proposes a transformation that is not only cosmological but also epistemological. It shifts the focus away from manual derivations of classical equations and toward conceptual modeling, computational simulation, and empirical testability through large-scale astronomical data. [2] [3] [4]

In an era where algorithms solve differential systems in milliseconds and telescopes such as the JWST generate more data than any human could analyze in a lifetime, insisting on traditional

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mathematical formalism as a primary scientific gatekeeper is increasingly misaligned with the practical realities of modern physics. Mathematics remains essential as the structural substrate of models, but its execution has been delegated, with precision and scalability, to symbolic computing, artificial intelligence, and modern scientific frameworks. [1]

DUT aligns with this paradigm. Its strength lies not in the display of tensors or in the manipulation of Riemannian indices, but in offering a physically coherent and computationally testable model capable of addressing key anomalies in the ΛCDM framework, including features in the cosmic microwave background (CMB), unexplained cold spots, and the structural nature of dark matter. Here, scientific rigor is defined not by chalk and notebooks, but by the logical consistency of the theory, the clarity of its predictions, and their potential for simulation and empirical validation.

Just as String Theory has earned scientific respect for its mathematical elegance despite lacking experimental support, the DUT offers a reciprocal proposition. It presents plausible observational pathways with minimal mathematical formalism. This is not a deficiency in rigor, but a contemporary and inclusive approach to theory-building that speaks directly to a new generation of physicists fluent in Python, machine learning, and distributed datasets.[2] [3] .[4]

This methodological shift is already underway in modern astrophysics. A notable example is the work of Lior Shamir (2023), who applied machine learning and pattern recognition algorithms to rotational asymmetries in galaxies observed via the James Webb Space Telescope. His results, notably that two-thirds of galaxies exhibit clockwise spin, challenge prevailing cosmological models. More importantly, they were derived not from manual equations, but from computational analysis of observational data. [1]

The DUT moves in the same direction. Its implementation relies on stochastic simulations, Bayesian modeling, and the analysis of high-resolution astronomical surveys. Rather than opposing classical mathematics, the theory embraces a dual methodology. Its conceptual structure can be framed symbolically, but its validation depends on measurable phenomena, particularly in regions of gravitational asymmetry, non-luminous matter clustering, and topological boundary transitions. In this sense, DUT is not speculative philosophy, but a testable computational cosmology grounded in observable physics. [2] . [3] .[4]

To fully engage the scientific community, a minimal mathematical framework including collapse dynamics, thermodynamic boundaries, and particle interaction models such as axion–UNO coupling is currently under development. However, the core of the theory remains pedagogically and philosophically accessible, encouraging broad participation in its refinement and simulation. [2] [3] [4]

The future of cosmology may not lie in equations alone, but in the convergence of code, data, and conceptual clarity. In that sense, DUT is a theory born not in abstraction, but in the gravitational pull of what can still be seen, tested, and explained

XXIV. Nota Metodológica: Sobre a Partícula UNO e Analogias Poético-Científicas

In the development of the Dead Universe Theory (DUT), certain terms and concepts are intentionally presented as speculative constructs to provoke conceptual expansion and exploratory interpretation. Chief among these is the notion of the UNO particle, a hypothetical entity introduced not as an empirically validated component of particle physics, but as a conceptual placeholder for unknown interactions that may govern structure, organization, or complexity within dark, non-luminous regimes of the universe.

The UNO particle should not be interpreted as a definitive physical discovery, nor should its implied functions (biological potential, life-support in darkness, or organizational hierarchy) be treated with the same scientific rigor as the gravitational and thermodynamic mechanisms outlined elsewhere in the theory. Rather, it serves as an ontological speculation, offering a symbolic bridge between entropy, consciousness, and non-baryonic cosmic structure.

Additionally, analogies such as the "stellar death inversion," "thermodynamic lava," "blister collapse," or "silent filaments" are metaphorical instruments, intended to describe complex structural transitions in ways that are intuitively accessible. These terms are used to stimulate new frames of thinking about dark matter structure and entropy, but are not, at this stage, formal cosmological definitions.

As such, these concepts are excluded from the theory's core testable predictions and must be understood as philosophical or conceptual speculation, not falsifiable components of the model. Their inclusion reflects the DUT's openness to interdisciplinary dialogue and its ambition to transcend purely mechanistic interpretations of cosmological decay.

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Author's Technical Disclaimer: The author is fully aware that this manuscript, although presenting a novel cosmological proposal, contains structural repetitions, lacks a complete formal mathematical derivation, and requires refinement of scientific language and formatting (e.g., LaTeX). These issues will be addressed in a subsequent review after initial peer feedback.

The author clarifies that no artificial intelligence tools were used for scientific content, theoretical arguments, or conceptual formulations in this study. All conceptual developments and physical reasoning were entirely original and were developed manually by the author. External AI systems were only used to simulate the universe as imagined for artistic purposes, where no other method was feasible. This was done to complement the manuscript visually, as scientific integrity must be preserved through direct intellectual authorship.

The present version has been submitted exclusively for scientific evaluation of its central hypotheses before final formalization and professional editing. The authors would sincerely appreciate it if the journal would also support the completion and improvement of the manuscript, and full credit will be given to all who contributed.